FEASIBILITY STUDY FOR THE PRODUCTION OF ASPEN FINISHING MATERIALS

Alberta
MUNICIPAL AFFAIRS
Innovative Housing Grants Program

FEASIBILITY STUDY

FOR

THE PRODUCTION OF ASPEN FINISHING MATERIALS

April, 1986

Prepared by HLA Consultants
for Snow Goose Industries

The views and conclusions expressed and the recommendations made in this report are entirely those of the authors and should not be construed as expressing the opinions of Alberta Municipal Affairs.

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FOREWORD

The project documented in this report received funding under the Innovative Housing Grants Program of Alberta Department of Housing. In May 1986 the Alberta Department of Housing was amalgamated with Alberta Municipal Affairs which is now responsible for issuing this report.

The Innovative Housing Grants Program is intended to encourage and assist housing research and development which will reduce housing costs, improve the quality and performance of dwelling units and subdivisions, or increase the long term viability and competitiveness of Alberta's housing industry.

The Program offers assistance to builders, developers, consulting firms, professionals, industry groups, building products manufacturers, municipal governments, educational institutions, non-profit groups and individuals. At this time, priority areas for investigation include building design, construction technology, energy conservation, site and subdivision design, site servicing technology, residential building product development or improvement and information technology.

As the type of project and level of resources vary from applicant to applicant, the resulting documents are also varied. Comments and suggestions on this report are welcome. Please send comments or requests for further information to:

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EXECUTIVE SUMMARY

The objectives of this study are to identify and document the feasibility of producing and marketing mouldings, trim, and baseboards from aspen, to determine and document the feasibility of establishing a manufacturing plant and to detail the requirements thereof.

The study methodology is comprised of the following steps:

1. Identification of range of mouldings and related products that might be produced using aspen as a raw material, their characteristics and production characteristics;
2. Review of aspen supply and quality in the Wildwood area;
3. Analysis of local and distant markets for the proposed products; and,
4. Examination of financial feasibility and preparation of development and operation plan.

The initial list of potential types of products that might be produced in a relatively small scale industry, was developed following discussions with foresters, forest products officials and manufacturers. The characteristics of aspen were matched with the requirements of proposed applications to determine their ability to meet requirements. The proposed products utilize grades and sizes of aspen that are readily available in Alberta. They include: moulding, trim, closet rods, dowelling, cabinet stock and solid wood wall panelling.

A review of the aspen supply and quality shows that adequate supplies of aspen exist in the Wildwood area to provide the plant with "selected" aspen over the long term. Most of the supplies could be acquired from local sawmill operators.

The market analysis reveals that markets for aspen moulding and solid wood wall panelling appear to be good, particularly if the plant uses effective marketing techniques in its business operations. Aspen products should be marketed as differentiated "innovative" products. It is also critical that the products undergo market testing prior to full scale plant production.

The proposed plan to manufacture aspen mouldings and related products, can result in a viable business. It is also recommended that the proposed plant enter into a legal agreement with Snow Goose Industries to lease plant space and equipment. Important recommendations for the proposed plant are presented in Section 10. They are broken down into three types: business, management, production and marketing.

1.0 INTRODUCTION

1.1 Background

For many years Alberta's extensive poplar timber resources have been recognized as having considerable potential for development. These resources tend to be concentrated in Western and North-Central Alberta. The largest stands of potential commercial timber are found around Lesser Slave Lake. Substantial reserves also exist west of Edmonton.

Current harvest levels are higher than twenty years ago, and some successes have been achieved in poplar products manufacturing. Alberta poplar is being utilized in the production of oriented strandboard, pallets, waferboard, aspen bleached kraft pulp, furniture and crafts. Even so, poplar continues to be underutilized because of the availability of large diameter, high quality, easily accessible softwood species.

In the last decade many poplar-based research and development programs have been undertaken. These have been directed to resolving technical problems or exploring the marketability of poplar products. Poplar utilization is expected to increase dramatically in the next twenty years because the softwood resources of Alberta and B.C. are approaching the maximum level of economic utilization.1 This, combined with declining softwood log quality and increasing distance from forest to plant, will result in increased utilization of poplar.

Snow Goose Industries, an aspen poplar products manufacturing plant based in Wildwood, has been operating since the summer of 1984. The plant manufactures a wide range of products including

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1. Carroll-Hatch (International) Ltd., Market Assessment for Poplar Products, Volume 1, Victoria, B.C., July, 1983.

kitchen products, computer tables, day-care furniture and custom work for offices. Most items are custom made rather than mass produced. Snow Goose is going into its second year of operation and is now exploring new markets for large volume orders of small dimension aspen products, such as day care furniture and computer tables. It continues to be involved in experimenting with the preparation of wood drying and stabilization treatment/bulking processes.

In the last year Snow Goose has generated considerable interest in aspen specialty lumber to be utilized in residential and other forms of construction and manufacturing. On an experimental basis, samples of wall panelling, dimensional lumber and mouldings were sent to various brokers and buyers to gauge the interest of potential customers. Their response was very favourable, thus the plant's management felt it would be worthwhile to undertake a detailed investigation of the markets, as well as the feasibility for establishing a production plant. In June, 1985, Snow Goose received approval by the Alberta Department of Housing for such a study under the Innovative Housing Grants program.

1.2 Statement of Objectives

The objectives of this study are to identify and document the feasibility of producing and marketing mouldings, trim, and baseboards from aspen, determine and document the feasibility of establishing a manufacturing plant and detail the requirements thereof.

The specific requirements of the research are summarized below:

- to identify the range of moulding and related products, their characteristics and their application in residential and other construction;
- to produce a variety of prototypes;

- to identify and specify production characteristics including raw materials, treatment, handling, equipment, storage and shipment;
- to review the quantity and quality of poplar in the Wildwood area and ascertain the ability of the local mill operators to supply required quantities;
- to examine the local and distant markets for the products;
- to obtain market information from key user groups related to potential products;
- to determine product lines and production characteristics for similar types of operations;
- to identify types of products to be manufactured and determine initial volumes of production by type of product;
- to identify optimum materials, necessary equipment and scale of plant for the operation and the costing of production;
- to prepare a financial pro forma for a potential operation over a five year period, taking into account sales revenue, capital and operating costs and subsidies that are available to the operation;
- to produce a plan for the development and operation of a manufacturing plant, address marketing, packaging, promotion and distribution techniques and specify support service requirements, suppliers to deal with and potential customers; and,
- to present the findings in a well documented report with appendices, that will be accepted for review by government and investors.

1.3 Methodology

The methodology for the project was designed to achieve the objectives outlined above.

This research began with identification of potential types of products that might be produced by a wood mouldings and related products plant. This was done through background research on the types of products that can be manufactured in this type of industry using poplar as a raw material. Characteristics of potential products were then specified and a variety of prototypes were produced for use in subsequent phases.

The next step was to conduct a literature review of the quantity and quality of aspen poplar in the Wildwood area. This was followed by discussions with Alberta Forest Service personnel to obtain information about current timber permits and deciduous timber allocations in the Edson and Whitecourt Forest Management Areas. Meetings were held with local sawmill operators to determine their ability to supply required quantities of poplar to the plant. Alternate methods of obtaining a guaranteed supply of aspen from other sources were also explored.

The research then focused on the identification and examination of the markets for selected residential building products previously identified. Accordingly, interviews were held with retailers and distributors. Contact was made with individuals throughout Alberta, British Columbia and Saskatchewan, both in person and by telephone. The type of information that was obtained in the interviews included demand for mouldings and related products, characteristics of demand, desired product specifications, prices, and distribution preferences. The information was then used to finalize product selection for which there is a demand. It also identified the most effective means of distributing potential products.

The next step involved the examination of products that would compete with the proposed products being examined. Products currently produced using aspen were reviewed to determine the extent of existing and potential sources of competition for aspen, both locally and regionally.

Similar types of operations that would compete with the proposed products were examined. Several manufacturers were contacted and interviewed. The information obtained included the firm's product characteristics, general operating and marketing procedures, and prices.

After a review of the market information, products were classified according to their market potential. These classifications were done on the basis of interviews and discussions carried out in the market overview and analysis of other manufacturers. At this time criteria were developed to identify products that could be viably produced.

The research then pursued the identification of production requirements for producing recommended volumes of proposed products and for establishing a plant. Production requirements were determined through interviews with other manufacturers, industrial machinery distributors, and government officials.

A financial proforma for the potential operation over a five year period was prepared. The proforma incorporated information collected during the market assessment phase and financial information obtained from equipment and material suppliers. Sales revenue and capital and operating costs were estimated from available information.

Finally, a development and operation plan was produced. The plan addressed marketing considerations, production characteristics, product packaging, promotion strategy, distribution techniques, plant requirements, roles and functions of key individual suppliers and potential customers.

2.0 DESCRIPTION OF POTENTIAL PRODUCTS

This section will review the characteristics and properties of poplar, identify the range of moulding and related products that might be produced from it, and specify their characteristics and applications in residential and other construction.

2.1 Poplar Characteristics and Properties

In the past, use of Alberta's poplar has been relatively limited, and in fact poplar has been considered a "weed" tree. In recent years, more attention has been paid to its use and suitability for various processes.

Aspen is a fast growing, short lived, deciduous tree, with an average diameter of 8" to 10" and an average height of 50 feet. Balsam poplar, like aspen, is a fast growing tree. It is considered a medium-sized tree, 60 to 80 feet in height, by 1 to 2 feet in diameter, occasionally it reaches heights of 100 feet and diameters of 4 feet or more.

Wood is the most extensively utilized material for residential construction and millwork. There are many varieties of wood with varying textures, grain patterns and colours as well as other varying properties such as density, strength and stability. There are two features of interest when selecting wood for the manufacture of wood products: appearance and working properties. Poplar characteristics are compared with other woods in Table 2.1 while its quality and working properties are compared in Table 2.2.

In summary, aspen's characteristics and working properties are as follows:

1. It is a light colored, medium hard hardwood.
2. It has good machining properties.
3. It has excellent paintability and is easy to glue.

Table 2.1
COMPARATIVE TABLE OF WOOD SPECIES
WOOD CHARACTERISTICS

Species	Possible Uses		Appearance			Practical Size Limitations[1]			Hardness	Dimension Stability[2]	Finishing		Remarks
	Exterior	Interior	Color	Figure	Grain	Max. Prac. Thickness Without Lamination	Max. Prac. Width	Max. Prac. Length			Paint	Transparent	
Ash		Trim Frames, Panelling, Cabinets	Creamy White to Light Brown	High	Open	1 5/8"	7 1/2"	12'	Very Hard	10/64"	Not Normally Used	Excellent	Bold grain, very strong
Birch, Yellow-Natural"		Trim Frames Panelling, Cabinets	White to Dark Red	Medium	Closed	1 5/8"	7 1/2"	12'	Hard	12/64"	Excellent	Good	Widely used
Fir, Douglas-Vertical Grain	Trim Frames, Doors, Special Siding	Trim, Frames, Panelling	Reddish Tan	Low	Closed	1 5/8"	11"	16'	Soft	6/64"	Good	Good	Good stability
Oak, Red-Plain Sawn		Trim Frames Panelling, Cabinets	Reddish Tan to Brown	High	Open	1 5/8"	9 1/2"	14'	Hard	11/64"	Not Normally Used	Excellent	Excellent architectural wood, low cost, widely used
Oak-White Plain Sawn	Doors, Sills, Door Frames	Trim Frames Panelling, Cabinets	Greyish Tan	High	Open	1 5/8"	7 1/2"	12'	Hard	11/64"	Not Normally Used	Excellent	Wide range of grain patterns and colors
Pine, Ponderosa	Trim Frames Sash, Special Siding	Trim, Frames, Panelling, Cabinets	Light to Medium Pink	Medium	Closed	2 3/4"	11"	16'	Soft	8/64"	Excellent	Good	Most widely used pine, wide range of applications for general usage
Poplar (Aspen)		Trim Frames Panelling, Cabinets	Pale Yellow to Brown with Green cast	Medium	Closed	1 5/8"	11"	12'	Medium	9/64"	Excellent	Good	Ideal interior hardwood, excellent paintability
Red Cedar, Western	Trim, Window Frames Special Siding	Trim, Panelling	Light to Dark Red	Medium	Closed	1 5/8"	11"	16'	Soft	6/64"	Good	Good	High natural decay resistance, limited availability
Spruce, Sitka	Trim Frames,	Trim Frames,	Light Yellowish Tan	Low	Closed	1 3/4"	11"	16'	Soft	10/64"	Good	Good	Limited general availability of softwood
Tanguile "Dark Philippine Mahogany", Plain Sawn	Trim, Frames, Doors, Special Siding	Trim, Frames, Panelling, Cabinets	Light to Dark Red	Medium	Open	2 1/4"	11"	16'	Medium	12/64"	Good	Good	Moderately priced attractive hardwood

Source: Architectural Woodwork Manufacturers Association of Canada, Millwork Standards, National Revision, April, 1978.

1. The maximum practical dimensions (not average) of each species in thickness, width and length, considering reasonable quantity requirements.
2. These figures represent possible width change in a 12" board when moisture content is reduced from 10% to 5%. Figures are for plain sawn unless indicated otherwise in species column.

Table 2.2

COMPARATIVE TABLE OF QUALITY OF WOODS AND WORKING PROPERTIES

Species	Applications	Weight	Softness	Strength	Nail Holding Characteristics	Resistance to Splitting in Nailing	Resistance to Splitting in Screwing	Stability	Machining	Gluing
Ash	Millwork, cabinets, furniture, upholstered frame, boxes, crates, baseball bats, tennis raquets	Fairly Heavy	Hard	Strong	Good	Good	Excellent	Good	Excellent	Good
Birch (Yellow)	Fine interior trim, doors and panelling	Heavy	Hard	Strong	Excellent	Fair	Fair	Tends to Warp	Excellent	Good
Fir (Douglas)	Preferred softwood for load-bearing members because of its exceptional strength and fairly low cost, seldom used for finish	Fairly Heavy	Soft	Strong	Good	Fair, splinters easy	Fair, splinters easy	Splits when exposed to the elements	Machines poorly	Fair
Oak (Red)	Flooring, millwork and inside trim	Heavy	Hard	Very Strong	Excellent	Good	Excellent	Good	Fair	Good
Oak (White)	High quality millwork, interior finish, furniture, carvings, boat structures, barrels and kegs	Heavy	Hard	Very Strong	Excellent	Good	Excellent	Good	Excellent	Good
Pine (Ponderosa)	Best softwood for interior trim because they are easy to shape and finish. Low grades commonly used in rough framing	Light	Average	Average	Good	Fair	Fair	Good	Good	Excellent
Poplar (Aspen)	Furniture, interior panelling, toys trim	Light	Soft	Weak	Fair	Excellent	Good	Resists Warping	Good	Excellent
Red Cedar	Shingles and shakes, exterior siding, fence posts, because of its unusual resistance to rot and termites	Light	Soft	Very Weak	Fair	Good	Good	Good	Excellent	Good
Spruce (Sitka)	Primarily for rough framing	Light	Soft	Average	Good	Good	Good	Good	Good	Good
Tanguile	Medium priced furniture, fixtures, trim, wall panelling, core stock in plywood boat building	Medium	Medium	Average	Good	Good	Good	Good	Good	Very Good

ADAPTED FROM INFORMATION PROVIDED BY THE NATIONAL FOREST PRODUCTS LABORATORY.

4. It tends to resist splitting when nailed or screwed.
5. It is an ideal interior hardwood that is principally used for trim, frames, panelling and cabinets.

2.2 Product Types and Characteristics

A wide range of poplar-based products has been evaluated in the past in terms of marketability and economic feasibility of their production. Technical feasibility has also been explored, and factors such as the quantity and quality of the wood's appearance, working properties, and processes and techniques designed to address the wood's characteristics have been examined. Findings from numerous studies suggest that the production and marketing of specialty lumber products appear to offer good potential for future investment. Such specialty lumber products encompass a wide range of items with potential, including panelling, shelving, turnings, mouldings, furniture components, bedframes and chopstick blanks.

The initial list of potential types of products that might be produced in a relatively small scale industry was developed following discussions with foresters, forest products officials and a small wood products manufacturer. The characteristics of aspen were matched with the requirements of proposed applications to determine their ability to meet requirements. Table 2.3 lists products that could be manufactured by such a plant utilizing grades and sizes of poplar that are readily available in Alberta. The following factors were taken into account when the list was developed:

1) aspen's maximum practical thickness (without lamination), width, and length is 1 5/8" x 11" x 12";
2) poplar's positive characteristics including appearance, machineability, favourable dry shipping weights, and the ability to take a wide range of finishes; and,

Table 2.3

Wood Products to be Assessed for Market Potential

Product	Specifications	Practical Size Limitation	Ability to Meet Requirements for Proposed Application: Resistance to Splitting in Nailing, Screwing	Resistance to Moisture	Nail and Screw Holding Ability	Strength	Finishing
Mouldings and Casings							
3000 Bevel Casing	7/16x1-1/2x8' to 16'	Clear-8' fingerjointed 16'	Yes	Yes	Yes	Yes	Yes
3002 Bevel Casing	7/16x2-1/4x8' to 16'	Clear-8' fingerjointed 16'	Yes	Yes	Yes	Yes	Yes
356 Colonial Casing	7/16x2 x8' to 16'	Clear-8' fingerjointed 16'	Yes	Yes	Yes	Yes	Yes
Colonial Base	7/16x3 x8' to 16'	Clear-8' fingerjointed 16'	Yes	Yes	Yes	Yes	Yes
3118 Hospital Base	7/16x1-1/2x8' to 16'	Clear-8' fingerjointed 16'	Yes	Yes	Yes	Yes	Yes
3120 Hospital Base	7/16x2-1/4x8' to 16'	Clear-8' fingerjointed 16'	Yes	Yes	Yes	Yes	Yes
3294 Burlap Mould	1-5/8 x8' to 16'	Clear-8' fingerjointed 16'	Yes	Yes	Yes	Yes	Yes
3296 Burlap Mould	2-1/4 x8' to 16'	Clear-8' fingerjointed 16'	Yes	Yes	Yes	Yes	Yes
3422 Window Stop	8' to 16'	Clear-8' fingerjointed 16'	Yes	Yes	Yes	Yes	Yes
3510 Hand Rail	8' to 16'	Clear-8' fingerjointed 16'	Yes	Yes	Yes	Yes	Yes
3264 Cove	8' to 16'	Clear-8' fingerjointed 16'	Yes	Yes	Yes	Yes	Yes
Sets (2 lengths 7ft, 1 length 3ft)							
Door Jamb	1x5, set	Yes	Yes	Yes	Yes	Yes	Yes
3422 Stop Sets	2x7 ft, 1/3 ft (set)	Yes	Yes	Yes	Yes	Yes	Yes
3000 Bevel Casing	7/16x1-1/2, set	Yes	Yes	Yes	Yes	Yes	Yes
Colonial Casing	7/16x2, set	Yes	Yes	Yes	Yes	Yes	Yes
Wall Panelling							
1/2" x 4" #2 Grade	5/16-up to 8'	Clear-8'	Yes	Yes	Yes	Yes	Yes
1/2" x4" #3 Grade	5/16-up to 8'	Clear-8'	Yes	Yes	Yes	Yes	Yes
1" x 6" #2 Grade	3/4x5 1/2-6' to 16'	Clear-8'	Yes	Yes	Yes	Yes	Yes
1" x 6" #3 Grade	3/4x5 1/2-6' to 16'	Clear-8'	Yes	Yes	Yes	Yes	Yes
1" x 8" #3 Grade	3/4x5 1/2-6' to 16'	Clear-8'	Yes	Yes	Yes	Yes	Yes
Closet Rods	32mm dia - up to 8'	Clear-8'	Yes	Yes	Yes	Yes	Yes
Cabinet Stock 1"x4",1"x6",1x8"		Clear-8'	Yes	Yes	Yes	Yes	Yes

3) the types of residential housing building products that can be produced by a relatively small scale plant.

Many softwoods and hardwoods are graded using rules developed and applied by various associations of lumber producers. Basic classifications of grading include boards, dimension, and timbers. However, poplar is not graded in Alberta at this time. Since it isn't, aspen must be of a "selected" quality. Most products listed in Table 2.3 must be made from clear lumber or with pleasant markings. Wood with tight knots can be used for panelling. The following specifies characteristics of selected products which will be examined in detail.

Moulding

Mouldings are basically decorative wood or plastic strips. They are designed to cover spaces such as between a door jamb and wall covering. They also provide decoration.

A wide range of types, patterns, and sizes of mouldings are used in homes. The most popular type of moulding currently sold is a colonial base or casing made of fingerjointed pine, mahogany, oak or fir/hemlock. Other types of moulding include cove, brick, battens, glass beads, drip caps, picture moulding and screen mould.

Door jambs, door and window stops and casings are also classified as mouldings. Interior door jambs are designed to fit walls of different thicknesses depending on whether walls are made of plaster, drywall or wood panelling. Door jambs and stops are frequently purchased as sets (2 pieces 7ft long, 1 piece 3ft) or in 14 feet lengths that can be cut into desired lengths. Interior window trim consists of casing stoop, apron and stops. They are purchased in varying widths and lengths.

Moulding would be a potential market for upper grades of aspen lumber. The practical length limitation for the manufacture of clear moulding is 8 feet. Longer pieces could be provided by fingerjointing (joining two pieces of wood together with glue). But they could only be used for paint grade applications since joints are visible. Clear moulding could also be lacquered or varnished.

Wall Panelling

Solid wood panelling can be used as an interior wall surface in most types of rooms. Lower grades of wood may be used because "defects" in these grades can provide color variations that give walls multiple tones. They break the monotony of the flat wall surfaces. Wood species most commonly used include pine, oak, and western red cedar. Boards range in width from 4 inches to 3/4 inches. Panelling that is 5/16" by 4" by 8 feet long is the most popular size purchased today. Board and batten or shiplap joints are used, but tongue and groove joints combined with shaped edges and surfaces are more popular.

Panelling may be put on horizontally, vertically, or diagonally. When applied horizontally panelling may be nailed directly to the studs. Vertical and diagonal installations require furring strips at the top and bottom of the wall.

Aspen solid wood panelling should be kiln-dried to a moisture content of between 7 and 10 percent. This should be done to avoid problems resulting from expansion and shrinkage.

Closet Rods

Closet rods are either made of metal or wood. Metal closet rods are generally 25mm in diameter. Wood closet rods (frequently made of fir) are generally 32mm in diameter. The length of rod ranges between 4 and 8 feet, depending on the size of the closet. It is important that the wood selected for use in this application be strong enough to support the weight it may be required to bear. Therefore, aspen's ability to meet the strength requirements of this application must be determined prior to more detailed examination of potential markets.

Cabinet Stock

Cabinet stock is clear dimension lumber which is surfaced on four sides. The most frequent sizes required are 1 inch by 4,5,6, and 8 inches. The lengths required range from 6 feet to 16 feet. The maximum practical length of clear poplar is 8 feet. Therefore, poplar would not be suitable in all cases. Surfaced dimension boards are used for a variety of applications including cabinets, woodwork and vanities.

Unsuitable Products

There are other building products which can be produced using aspen. These include products such as exterior siding, flooring, and exterior doors and windows. Generally these products are not considered suitable for marketing because the characteristics of aspen make them inferior by comparison with the same products made from other woods. For example, poplar is too soft to be used as flooring. It would dent easily unless large quantities of varnish were applied to it. Poplar would not be appropriate for use as exterior siding or doors because it does not weather well when exposed. In order to use it as an exterior product poplar would have to be sealed well. This extra cost would put poplar at an economic disadvantage.

2.3 Product Applications

Poplar is best utilized indoors because dramatic changes in moisture content can cause the wood to crack and warp. The humidity inside buildings tends to be controlled so that the wood is not affected significantly. Advances in the treatment and stabilization of wood using solutions are continuing, and technical problems related to changing moisture content should be resolved in the future. This would permit the effective use of poplar outdoors.

The proposed products will mainly be used in the construction of new homes, renovations and commercial building construction. It is estimated that 40% of single family dwellings, semi-detached, row houses and apartments use wood mouldings, trim and baseboards.2 Poplar mouldings may be produced at a lower cost than the wood mouldings that are currently manufactured from imported woods. Therefore poplar mouldings may become an import substitute and could have potential as an export to eastern Canada and the U.S., in particular to the western U.S.A. Approximately 60% of windows in single family dwellings consist of wood frames, while 90% of all interior door frames are made of wood.3 This indicates that residential building construction utilizes large volumes of baseboards, trim, mouldings and wood frames each year. If these products could be manufactured at a lower cost by using a wood such as poplar the potential exists to sell a large volume of poplar residential building materials in the province. These products could be sold either directly to the end users, retailers, contractors, and distributors, or to other manufacturers. Home improvement centres, hardware stores, building supply chains, wood product distributors, contractors

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2. Alberta Housing, Alberta Residential Building Products, ISBN 0-88654-114-X, June, 1985.

3. Ibid.

and door and window manufacturers, both within and outside the province, have been identified through the examination of reports, catalogues, and directories. They have been interviewed in Phase 2 of the project to obtain market information for use in the analysis.

3.0 POPLAR SUPPLY AND QUALITY

This section focusses on the quantity, quality and availability of poplar in the Wildwood area, and the ability of local sawmill operators to supply required quantities to Snow Goose, in the short and long term. Alternate methods of ensuring the availability of poplar, in the future, are also explored in this section.

3.1 Resources in Wildwood Area

Poplar reserves in the Wildwood area are substantial in the white and green areas. Most of the land surrounding Wildwood is in the white area, or area of settlement and land clearing, or designated timber "liquidation" zone. Coniferous and deciduous trees can be cut down on private land at the discretion of the owner. Timber on crown land is administered by Alberta Forest Service who issue Local Timber Permits (LTP) or Commercial Timber Permits (quantities of 100,000-250,000 fbm) to operators wishing to cut down trees on crown land. Discussions with local sawmill operators in the area indicate that there is enough poplar on private and crown land in the white area, to meet all short term needs and most long term needs. Alberta Forest Service verified this and state that a number of LTP's and Commercial Timber Permits can be issued at this time.

"Green Areas" are those areas that are administered by Alberta Forest Service under the authority of the Forest Act, 1971. Under this Act, public forest lands are broken into forest management units. "Annual allowable cuts" (AAC), or the total volume or area of timber that may be harvested in one year, are determined for each unit. Harvest levels are designed to provide a perpetual sustained yield.

In the Wildwood Area forest management units are located in the

Edson and Whitecourt Forest Areas. The forest management units located closest to Wildwood are W6, W5, E1 and E2. Timber in these units can only be logged by permission of Alberta Forest Service.

Timber in the green area can be logged by obtaining permits or being awarded a "Deciduous Timber Allocation" (DTA). DTA's have been awarded to Pelican Spruce Mills, Edson, in all forest management areas near Wildwood. In the last several years Pelican Spruce Mills have been awarded two DTA's in W5 totalling 75,970m3 (aspen annual allowable cut), one in E1 for 21,660m3 and one in E2 for 78,000m3. In 1985 they also were awarded a DTA totalling 30,000m3 per year in W6. Information obtained from Alberta Forest Service indicates that a DTA for 20,000m3 will be offered through public auction in approximately two years. However, it is expected that Pelican Spruce Mills will express strong interest in the allocation so as to ensure a long term of good quality aspen. In addition, (1,933,900 fbm) will likely be disposed of by a combination of LTP's and commercial timber permit sales in W6.

At this time a limited number of local timber permits and commercial timber permits are issued in the green area. Alberta Forest Service personnel in Edson Forest Area indicate that 20 new applications for deciduous wood are awaiting approval for the designation of new deciduous timber strips. This indicates that without a change in the harvesting policy, local sawmill operators' utilization of timber in the green area may be limited, because most of it is and will be committed to Pelican Spruce Mills.

3.2 Quality of Poplar

Alberta Forest Service has completed a major assessment of the province's timber resources. The Phase III Inventory* contains

* Phase III is a comprehensive, computer-based aerial-photo measurement of timber reserves.

data related to hardwood volumes, age, class, distribution and distribution of hardwood stands. The Inventory identifies areas in the Edson and Whitecourt regions which contain aspen of better quality than is usual for northern Alberta. The study also indicates the need to further refine methods to better differentiate between aspen and balsam poplar.

Aspen and balsam poplar are subject to decay in and around the heartwood which cause timber loss and decline of wood quality. The decay can be unpredictably distributed throughout the tree and it is difficult to detect in a standing tree. Even after the tree is cut down, it may not be possible to determine the extent of decay until the tree is debarked and sawn. Green aspen is also prone to develop blue stain. Although this does not affect the physical strength of the wood, it detracts from its physical appearance. Generally the most serious decay occurs in older trees. Trends seem to indicate that merchantable trees range in age between 50 and 75 years old. Those trees that are younger tend to be either too small to use, or they have a large proportion of knots which reduce the structural strength of the wood. Older trees are frequently too decayed and unstable to utilize. The quality of pure and mixed wood stands changes dramatically from stand to stand and quality of a stand, often cannot be determined until the stand is logged.4

A selected quality of poplar would be required in the construction of proposed products. Since poplar is not graded in Canada at this time, a brief description of requirements will follow. In most cases, clear green sapwood of mature trees will be required. The sapwood of tension, or juvenile, trees tends to

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4. Woodbridge Reed and Associates Ltd., Utilization of Hardwoods in Northern Alberta, Main Report, Vancouver, B.C., February, 1985.

warp when dried, so their lumber is not deemed appropriate for use. Wood with tight knots would be appropriate for the manufacture of wall panelling; however, if the knots are too loose, they fall off during drying or subsequent processes. The wood required by Snow Goose would need to be green, rough, planed, multidimensional lumber. In order to maximize the use of it, the moisture content of the feedstock must not exceed 6 to 7%. Since green poplar lumber has a moisture content of approximately 30%, a system to predry lumber must be used by Snow Goose. Stabilization of wood can also increase the yield of useable wood, because it reduces the wood's tendency to expand and contract with moisture changes, and therefore reduces the amount of checking and cracking in the wood.

At this time, without the use of stabilization treatment or the bulking of wood, it is estimated that "selected" wood required by Snow Goose will make up between 25-60% (depending on the stand) of the total poplar produced by a logging operation in the Wildwood area. This estimate is based on the results of sawmill operator surveys, literature reviews and through discussions with Alberta Forest Service. A random sampling of a mill run at Snow Goose Industries indicates that the quality of "selected" wood is as follows:

10% clear
35% with knots no stain
14% stain
44% knots and stain.

3.3 Survey of Sawmill Operators

Two surveys of sawmill operators in the Wildwood area have been conducted recently. In September, 1983, 25 of 32 active sawmill operators in the Poplar Region Economic Council were surveyed. Most respondents were interested in supplying Snow Goose Industries with poplar. They could not foresee any problems related to availability of stands for many years. Results from the survey indicate that approximately 13,000,000 fbm of lumber are produced annually, of which approximately 14% is poplar. Operators estimated that approximately 34.4% of poplar produced would be considered select grade. Many operators indicated that they are not producing poplar because there is no market for it.

A meeting was held with local sawmill operators in August, 1985, to discuss the poplar requirements of Snow Goose's proposed manufacturing plant. Approximately 25 sawmill operators attended the meeting. Most sawmill operators indicated that given a good price they could supply Snow Goose with all the "selected" aspen poplar that will be required by the operation. Some individuals expressed concern about the availability of the supply in the future. Several felt that utilization of timber in the green area may be necessary. Large scale logging by Pelican Spruce Mills both in the white and green area has a great impact on the supply and future availability of aspen, and several sawmill operations currently have agreements with Pelican.

At the meeting a questionnaire was distributed. A copy of it is presented in Appendix A. Fourteen sawmill operators responded to the survey. Results indicate that the respondents are scattered in an area surrounding Wildwood. Most have been in business for more than 5 years and only 6 operate all year round. The total capacity of all operations is approximately 19,500,000 fbm annually. These operators could produce an estimated 5,900,000 fbm of "selected" poplar each year for an average price of $225/1000 fbm Most expressed a willingness to expand their operation if a good buyer for all their select aspen were available. Although several operators expressed concern about finding markets for off-grade lumber, it was generally agreed that it was their responsibility to find one. Potential markets for off-grades may include the following: Pelican Spruce Mills, various lumber companies, the pallet manufacturing industry and oil companies (for use as oilfield skids and pipe racks).

3.4 Alternate Methods of Obtaining Poplar

In view of the findings of the literature review, survey results, and information obtained from Alberta Forest Service, it was deemed necessary to explore alternate methods to ensure the availability of "select" aspen over the long term. Two alternatives were explored; one, that Snow Goose purchase aspen logs from Pelican Spruce Mills, and the other that Snow Goose try to obtain the DTA in W6 when it goes to public auction in two years.

Allowable cuts of deciduous trees in the green areas nearest Wildwood are allocated to Pelican Spruce Mills oriented strandboard (OSB) plant. All aspen logs under a certain dimension are utilized at the plant. Although an overall level of log quality must be maintained, the use of large numbers of high quality aspen logs is not crucial to the operation. Meetings with Pelican Spruce Mills were initiated to discuss Snow Goose's proposed manufacturing plant and to explore the possibility of developing an agreement related to the supply of aspen. Preliminary discussions indicate that Pelican Spruce Mill may be willing to sell Snow Goose high quality logs at the mill's plant site in Edson. Snow Goose would be responsible for having the logs sawn and transported to Wildwood. With this alternative, it would be best to have logs sawn near Edson because logs would be more expensive to haul than lumber. A portion of the lumber may not be useable by Snow Goose, therefore, it would not be feasible to haul it. Although this option would ensure that Snow Goose has a long term supply of "selected" aspen, it would not provide a large number of employment opportunities to local people which is a high priority of this project. The plant would not be faced with the problem of coordinating lumber acquisition from various sources, nor ensuring that requirements are met over the long term, however, the industry would have the added responsibility of disposing of off-grades and residuals. This option could be modified so that logs purchased from Pelican Spruce Mills are only utilized when local sawmill operators are unable to provide all required quantities of lumber to Snow Goose.

The second alternative would be to obtain the Deciduous Timber Allocation for 20,000m3 (about 4,660,000 fbm) in W6 when it goes to public auction in two years. Snow Goose would be required to act as a contractor and follow guidelines developed by Alberta Forest Service. The industry could then subcontract logging to local sawmill operators. The problems associated with this option are as follows:

1) Snow Goose would have the overall responsibility for ensuring 20,000m3 are logged each year.
2) Most small operators in the area operate parttime. It may therefore be difficult to obtain the commitment of a sufficient number of people to log 20,000m3, since many operators may already have their own established supply of aspen.
3) Snow Goose may have to assume responsibility for finding markets for off-grades and excess quantities of "select" aspen and other types of hardwoods.
4) Snow Goose and Pelican Spruce Mill will be in strong competition to obtain the DTA. Snow Goose may not be awarded the allocation.

The positive feature of this alternative is that Snow Goose Industries would be providing employment opportunities to people in the Wildwood area. In the meantime, timber located in the white area could be utilized until the DTA is awarded.

3.5 Ability to Meet Requirements

A review of the quantity and quality of aspen/poplar in the Wildwood area indicates that Snow Goose Industries will be able to receive adequate supplies of "selected" poplar for use as a raw material. The recommendation of an option, modified option, or combination of options, can only be done after initial requirements of volumes of "selected" aspen are more clearly defined, and the cost of aspen is determined. At that time Alberta Forest Service will be able to provide more specific information related to the availability of local timber permits, commercial timber permits, and DTA's. In addition, Pelican Spruce Mill may be better able to discuss details related to the development of a long term agreement with Snow Goose.

4.0 MARKET ASSESSMENT

4.1 Introduction

The objective of this section is to identify and examine the markets for the selected residential building products listed in Section 2. Target markets, product specifications, price relationships, distribution mechanics, and promotional activities will be discussed. The assessment is based largely on the results of personal interviews conducted with distributors, retailers and other manufacturers. Up-to-date data concerning wood products manufacturers, the home renovation industry, do-it-yourself (DIY) markets, and housing statistics, were also considered in this assessment.

4.2 Markets for Selected Products

The markets for the potential products were identified largely on the basis of 25 personal interviews and 100 telephone interviews conducted with distributors, retailers and other wood product manufacturers. A specific questionnaire format was developed and used during informal interviews. This assured the collection of standardized information for analysis, which was both accurate and objective, yet allowed the interview to remain informal in nature. The following type of information was obtained:

- demand and use for the specific types of products;
- product specifications;
- estimated quantities required;
- price range;
- similiar products now used;
- specifications of similiar products;
- packaging preferences;
- effective means of distribution; and,
- other user groups and/or outlets and markets.

Wood mouldings and related products are used in the construction of new houses, additions, and home renovation/repair. They are frequently sold to building contractors or homeowners involved in these activities. The DIYer is a term frequently used to describe the market generated by homeowners who do their own renovation and repairs.

New house construction is generally carried out by contractors who tend to purchase their building materials from retail/contractor lumber yards, who in turn purchase them from distributors. Retail and contractor lumber yards are distributed throughout the province, and tend to locate close to their markets, at locations convenient to customers. As a result, they tend to be concentrated in large cities, such as Edmonton and Calgary, or those areas experiencing accelerated population increases through in-migration, such as Lloydminster and Bonnyville. Distributors tend to locate in larger cities. They usually maintain a sales force which regularly calls on retailers located in their market areas.

Building materials required by contractors for use in home renovation/repair are also acquired from retail/contractor lumber yards. Homeowners or the DIYer tend to acquire building materials from home improvement centers and retail lumber yards. Home improvement centers tend to purchase wood mouldings and wall panelling from distributors. However, some centers also purchase directly from manufacturers, or use brokers, when expedient.

A Family Expenditure Survey conducted by Statistics Canada in 1982 reveals that approximately three-quarters of all homeowners in Canada reported expenditures on maintenance, repairs and replacements to their dwellings in 1982.[5] Almost 30 percent made renovations or alterations. The majority of these households did the type of interior work which could be undertaken by DIYers such as painting, wall papering, caulking, etc. Most of them reported

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5. Statistics Canada, Family Expenditure Survey, 1982

incurring separate materials costs, which implies that DIYers are a significant element in the repair and improvement field.

Findings of the survey indicate that homeowners aged 25 - 34 have the highest incidence of repair and improvement expenditures, with progressively lower incidence as age increases. Families consisting of two adults with children had the highest expenditures among all homeowner types. Homeowners with mortgages reported a slightly higher incidence of expenditures than did those without mortgages. Owners of the most recently constructed dwellings (built 1976 - 1982) reported the highest incidences of improvement work. In summary, most repairs and improvements were undertaken by homeowners aged 25 - 34 who have children and had lived in a house which was less than 5 years old.

The following will discuss the mechanics of distributing wood mouldings and related products. It will follow the marketing channels from manufacturer to the ultimate end users; the contractor and homeowner. The functions, characteristics and buying patterns of wholesalers, retailers and the ultimate end user, will also be explored.

4.2.1 Wholesalers

Types of Wholesalers and Their Functions

Wholesalers basically act as "middlemen" between manufacturers and retailers. They generally represent several manufacturers to a single customer (mainly retailers). This often serves to lower costs because it reduces the number of necessary contacts between manufacturers, retailers and end users. It also gives manufacturers wider market coverage by permitting them to sell products in a larger market area than might be feasible if they sold directly to retailers.

Wholesalers can be broken down into two categories: distributors/merchant wholesalers, and agents/brokers. Distributors buy the products that they handle, while brokers do not take title of them. Brokers/agents normally perform fewer services than distributors and are typically involved in bringing together buyers and sellers.

Distributors account for approximately four fifths of the wholesale sales in Canada.[6] They provide a complete assortment of services for retailers or industrial purchasers. Their major function is breaking bulk and routing small orders to the retailer, thereby realizing savings in transportation costs. They tend to store merchandise in convenient locations, permitting customers to make purchases on short notice. Distributors usually maintain a sales force which regularly calls on retailers and makes deliveries. Generally their costs range between 20 to 25 percent of sales.

Brokers bring buyers and sellers together. They may represent either buyer or seller in a given transaction, but not both. The broker receives a fee from the client when the transaction is completed. Since the only service performed is negotiating for exchange of title, the operating expenses average 3 to 5 percent of sales. Because brokers operate on a one-time basis for sellers or buyers, they cannot serve as an effective channel for manufacturers requiring continuous service.

Distributors and retailers interviewed state that most wood mouldings and related products are purchased from distributors. Direct sales are usually not practical. Many retailers prefer to buy the bulk of their mouldings, wall panelling, dowels and pre-cut lumber, from "stock" distributors. Most successful distributors provide immediate deliveries from central stock warehouses, which

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6. Statistics Canada, Wholesale Trade Statistics, Catalogue Number 63-226

are designed to reduce the retailers need to hold large stock. They have drop-shipment programs which are designed to suit the individual retailer's requirements at different store locations. Some even provide price-coded items, in-store shelf stocking and inventory control of the retailer's own stock.

Major Distributors in Western Canada

Table 4.1 lists the major distributors of wood moulding and wall panelling in Alberta, Saskatchewan and B.C. It also provides a breakdown of the types of customers that purchase materials from them. It shows that most materials are sold to contractors/retail lumber yards or retail stores. Millworks and window manufacturers account for less than 20% of distributors' total sales.

The majority of distributors interviewed have a central head office which makes major purchase decisions and selects new merchandise for inclusion in the firm's product line. Purchase decisions are often made on the basis of services, certainty of supply, efficiency of the product, price, and probable acceptance of the product by retailers and consumers. Once approved, sales branches may carry an inventory of the product (if they choose to do so) and develop a marketing program to assist in the promotion of the product. Some distributors permit sales branches to make purchase decisions regarding the introduction of new products in their own local branches. However, if national or regional coverage is desired, head offices must be contacted. The same wholesalers and distributors supply the new-building and renovation markets. Their wood product lines are generally composed of complimentary products such as doors, mouldings, shelving and wall panelling. Several distributors also sell dimension lumber plywood, particle board, oriented strandboard (OSB), and waferboard.

Marketing Considerations and Buying Patterns

The majority of distributors interviewed state that competitive prices and good quality products are the most important marketing considerations. Short turn around in orders is also important. Frequent contact with the manufacturer is not very important. The location of the manufacturer and ability to customize does not affect the buying patterns of most distributors. The quality of packaging is important, not for display, but for shipping of the goods. The distributors interviewed state that products intended for use in the construction of "standard houses"[7] generally are of a lower standard than products or materials used in upgraded homes

Table 4.1

Major Distributors of Wood Moulding and Wall Panelling in Alberta

Distributor	Location of Head Office	Number of Branches in Sask./Alberta and B.C.	Purchasers of Materials: Other Manufacturers* (Percentage)	Purchasers of Materials: Lumber Yards (Percentage)	Purchasers of Materials: Retail Stores (Percentage)
Canadian Takahashi	Burnaby, B.C.	3	15	40	45
Canfor	Burnaby, B.C.	8	10	25 - 30	70 - 75
Dee Marketing	Edmonton	-	-	80	20
Elswood Distributors	Vancouver	7	20	20	60
Henderson's Distributors	Winnipeg**	7	5	70	25
MacMillian Bloedel	Vancouver	6	<10	25 - 30	70 - 75
McIlveen Lumber	Calgary	2	10	45	45
McKillican Hardwoods	Edmonton	4	25	50	25
Northwoods Mills	Toronto	3	5	45	50
P. J. White Hardwoods	Vancouver	3	75	12	13
Taiga Forest Products	Vancouver	5	20	55	20
Weldwood of Canada	Vancouver	8	15	42	43

* Other manufacturers include millworks (cabinet makers) and window manufacturers.

** Although head office is located in Winnipeg many purchase decisions are made in Saskatoon Office.

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[7] Defined as a three bedroom bungalow constructed with standard materials or those that are known to be used most frequently by house builders.

or renovations. Builders are very cost conscious and frequently accept a low quality of material such as that used in "paint grade applications". This is verified in an Alberta Housing Study[8] which states that approximately 40% of all standard houses utilize unfinished wood casings and baseboards made of fir/hemlock or fingerjointed pine. Other frequently used alternatives include prefinished wood and plastic mouldings available in colours which match doors.

Solid wood wall panelling is considered an alternate rather than standard material for use in the construction of new homes. It tends to be used for feature walls in an upgrade situation. It is also frequently used in renovations by "DIYer's". At this time, cedar and pine are the most popular species utilized by consumers. Building contractors also use sizeable quantities of red oak.

Types and Quantities of Mouldings Sold

Table 4.2 lists the wood product lines, wood species and volume of products, handled by major distributors in Edmonton. It shows that mouldings made of fir/hemlock constitute the largest proportion of moulding sales. Other species utilized include red oak, mahogany, and fingerjointed pine. Several distributors indicate the trend is shifting; retailers are beginning to purchase larger quantities of fingerjointed pine and oak mouldings. Market studies conducted by Canfor indicate that fingerjointed pine and oak mouldings will command a larger market share in the future. To keep pace with this trend, they will be introducing fingerjointed pine and oak mouldings in the near future.

Most distributors handle "standard" or stock mouldings. Custom mouldings are generally purchased from local millwork manufacturers.

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[8] Alberta Housing, Alberta Residential Building Products, ISBN 0-88654-114-X, June, 1985.

Table 4.2

Wood Product Lines, Wood Species and Volume of Products Handled by Major Distributors in Edmonton

Distributor	Wood Product Line	Species	Volumes Sold (annual)		Products Sold	
			Moulding	Solid Wood Wall Panelling	Moulding	Solid Wood Wall Panelling
Canadian Takahashi	Doors casings, mouldings, architectural, ornamental mouldings	Red oak, poplar, basswood, prefinished, pine, mahogany	N/A	-	65% prefinished 10% fingerjointed pine 10% mahogany 15% red oak	
Canfor	Moulding, sold wood wall panelling, shelving, lumber, plywood, OSB, treated lumber	Mahohogany, pine, fir, hemlock, oak, cedar	200,000 ln. ft.	160,000 ln. ft.	70% hemlock/fir 30% mahogany	60% cedar 40% pine
Dee Marketing	Moulding, solid wood wall panelling, S4S lumber	Mahogany, pine, fir, cedar, oak	300,000 ln. ft.	150,000 B. ft.	45% pine 45% mahogany 10% oak, red	85% cedar 15% pine
Elswood Distributors	Cabinet Doors, moulding, plywood, prefinished panel, , door, solid wood panelling, hard wood lumber, particle board	Mahogany, fir/hemlock, red oak, black walnut, teak, alder, white oak, ash	N/A	Don't sell - only hardboard	80% hemlock/fir 5% mahogany 15% oak	Don't sell
Henderson's Distr.	Moulding, solid wood wall panelling, plywood, S4S lumber, doors, siding	Fir, spruce, mahogany, pine, oak, cedar	500,000 ln. ft.	500,000 B. ft.	10% pine/fir 10% oak, 30% fir 50% mahogany	80% cedar 20% pine
MacMillian Bloedel	Moulding, shelving, solid wall panelling, lumber, siding, plywood, treated lumber	Mahogany, pine, cedar, fir, oak, hemlock	500,000 ln. ft.	700,000 B. ft.	75% hemlock/fir 10% fingerjoint 5% oak 10% mahogany	90% cedar 10% pine
McIlveen Lumber Industries	Moulding, wall panelling, S4S lumber	Mahogany, pine, cedar, fir	200,000 - 300,000 lin.ft.		70% fir 30% cedar/mahogany	35% cedar 65% pine
McKillican Hardwoods	Moulding, hardwood lumber, plywood	Pine, cedar, fir, mahogany, alder, ash, birch, teak, maple, oak, walnut,	100,000 ln. ft.	Just intro. potential 150,000 - 200,000 B. ft.	100% oak	100% oak
Northwoods Mills	Moulding, closet rods, solid wood, wall panelling, door, plywood, lumber	Pine, mahogany, spruce, oak, hemlock, fir, birch	2,500,000 ln. ft.	100,000 B. ft.	40% pine, fingerjointed 30% mahogany 15% oak 15% hemlock	60% pine 40% cedar
P. J. White Hardwoods	Moulding, hardwood lumber, plywood, decorboard	Ash, birch, cedar, alder, mahogany, maple, oak, teak, walnut	200,000 ln. ft.	Just introducing	100 % oak, red	May sell oak in future
Taiga Forest Products	Moulding, solid wood wall panelling, lumber, plywood, waferboard, doors, particleboard	Pine, cedar, spruce, fir	2,500,000 ln. ft.	210,000 B. ft.	100% fingerjointed	90% pine 10% cedar
Weldwood of Canada	Moulding, wall panelling, shelving lumber, plywood, waferweld, hardboard, particle wood, pressure-treated	Pine, spruce, fir, hemlock, mahogany, cedar, prefinished	Unknown large quantity	320,000 B. ft.	75% hemlock/fir[2] 20% mahogany 5% cedar, oak, specialty	50% pine 50% cedar

1. Will be distributing oak and fingerjointed pine in the near future. Inhouse market study findings indicate that fingerjointed pine moulding sales may be substantial.
2. Edmonton branch only sells prefinished and vinyl mouldings due to market conditions. Figures given represent regional branches.

As a basic minimum, most distributors carry several different profiles of casing, bases, moulding, window stops, hand rails, door jambs and stops. Several distributors purchase these products in 14 or 16 feet lengths. If door jamb or stop sets (2 pieces 7 feet long and one 3 feet long) are required, some distributors produce them at their distribution centre. Other distributors carry moulding in varying lengths ranging from 6 feet to 16 feet, depending on what is available. Longer mouldings are channelled into the contractor market where 14 to 16 feet lengths are preferred. Shorter lengths are channelled into the do-it-yourself market where mouldings averaging 8 feet in length are preferred (shorter lengths facilitate transporting the moulding from retailer to home in a car). Most distributors also handle pre-cut door jamb and stop sets.

It is very difficult for distributors to quantify the amount of mouldings sold annually. All but one distributor was unable to identify sales by moulding profile. The distributor that is able to give a breakdown of sales, reports that colonial casing and base account for the highest proportion of sales by moulding profile in Alberta at this time. However, all distributors stated that personal preference differs between regions and what is popular in one province may not be in another (colonial casing is not as popular in B.C.). Personal preference also changes dramatically over a relatively short period of time.

Total annual sales of mouldings are also difficult to determine because mouldings come in a wide range of sizes. Each truckload of mouldings contains a different quantity of lineal feet, depending on which profile is purchased. Therefore, the figures showing annual volume sold by distributors listed in Table 4.2 should be viewed as estimates. Interviews with distributors and retailers suggest that MacMillan Bloedel, Northwoods, Canfor, and Weldwood of Canada appear to have the largest market shares in distributing moulding in Alberta.

Types and Quantities of Solid Wood Wall Panelling Sold

Table 4.2 lists the distributors of solid wood wall panelling. It shows that most panelling sold at this time is either cedar or pine. Smaller quantities of red oak are also sold. Most panelling that is distributed, is brought in from the interior of B.C., or the northwestern U.S.A. states.

Consumer preference for wall panelling has changed over the years. Approximately 15 years ago most wall panelling sold was hardboard sheets (8 feet by 4 feet). Tastes have changed and solid wood wall panelling has become increasingly popular. The three most readily available sizes are 5/16" x 4" and 1" x 4" or 6". Over the years the focus in sales has shifted from 1" x 4" or 6" to 5/16" x 4" boards; mainly the result of the manufacturer's effort to market lower priced packages and make them affordable to a larger number of consumers. Thinner, narrower pieces (5/6" x 4") also tend to be less affected by warping and easier to work with when warping is present.

Several different qualities of wood panelling are sold. Pine panelling is frequently sold as Grade #1, #2 or #3. The most common type of pine used is ponderosa pine. However, the utilization of lodgepole pine is increasing. One manufacturer is currently producing a lodgepole pine panelling which is embossed and prefinished in oak and chestnut patterns. Unfinished pine is generally sold as "knotty" pine. Cedar, usually western red cedar, is sold either as "clear" panelling or as "knotty" cedar. Clear panelling is priced considerably higher than knotty. Cedar is graded differently than pine and generally sold as Grade A and B. Some distributors use different terms to describe the grade of wood, such as first quality, premium, cottage grade (utility), rustic, etc. Most wall panelling sold is V joint tongue and groove. It has a rough and smooth side and can be reversed to suit consumer taste. Solid wood sold in 5/16" x 3 5/8" dimensions is frequently sold in shrink wrap packages consisting of between 14 and 20 square feet per package. Wood sold in 1" x 4", 6" or 8" dimensions is generally sold in bundles secured with stickers. These also have cardboard at the ends which serves to protect the packages during handling and transportation.

Distributors state that there are seasonal aspects to the wall panelling and moulding markets. Consumers undertaking renovation work tend to be involved in these activities during the fall and winter months. Moulding and wall panelling sales drop drastically in the spring and summer because consumers place their emphasis on exterior work projects.

Distributors interviewed state that the proportion of wood panelling sales by wood species is approximately 70% cedar and 30% pine. Oak wood panelling accounts for less than 10% of total sales. Several distributors suggest that pine sales have picked up this year and may continue to do so in the future. Others note no differences in the proportion of sales by wood species. However, personal preferences are changing and a trend to selling larger quantities of red oak is emerging. To meet this growing market, several distributors plan to stock oak panelling shortly. In the last year Edmonton distributors report that 1,690,000 Bft. of solid wood wall panelling were handled and distributed in the region. They were unable to provide a breakdown by type or quality. Wall panelling sales have increased in the last few years and will continue to do so in the next two years. However, distributors suggest that most branch sales haven't risen substantially because additional distributors introduced panelling to their product lines when good market potential appeared.

Potential of Introducing Poplar

Distributors interviewed were shown samples of wood mouldings, dowelling and wall panelling made of poplar to assist in determining the market potential of these products. All those interviewed were impressed with poplar's appearance. Some were concerned with its propensity to warp and dent. Others suggested that its maximum practical length of 12 feet would limit its potential for use by contractors as a clear moulding because they prefer to purchase lengths in the range of 14 to 16 feet. However, fingerjointed poplar could be sold to contractors in any desired length. It would directly compete with fingerjointed pine for use in paint grade applications.

Most distributors agreed that clear poplar mouldings in 8 feet lengths could be sold in the do-it-yourself market, if prices were competitive. Depending on how it is marketed, it would probably compete with fir/hemlock and fingerjointed pine. A factor that could limit its wide acceptance as a moulding for clear applications, is that consumers prefer to purchase casings which will match doors. Most doors are made of either mahogany (generally used in paint grade applications) or fir. Therefore, fir and mahogany mouldings may have competitive advantage from a wood species viewpoint. Poplar could easily be used in paint grade applications, although it probably would not be economically feasible to price so that it could compete with fingerjointed pine. Poplar mouldings used as trim around poplar and knotty pine wall panelling would have a definite competitive advantage over other types of wood used in clear applications. Solid pine moulding is not readily available due to difficulty in obtaining long lengths of it without knots. There also are no low priced wood species that are light colored and used in clear applications. As a result, there may be potential for poplar moulding to establish itself in this market.

Most distributors state that poplar wall panelling would directly compete with knotty pine panelling due to its light color. Several distributors suggest that since its appearance is somewhat different it may compete with the higher grades of pine or knotty cedar. In other words, it would probably be a viable product alternative to pine, even if it were priced slightly higher than knotty pine.

Distributors are enthusiastic about the introduction of poplar moulding and wall panelling in the marketplace. They express interest in including these products in their product line, if prices are competitive. Distributors suggested that if a poplar products industry were established it should contact them once pricing is established and products samples are available. All distributors interviewed state that manufacturers generally sell their products exclusively to one distributor, or to several when one distributor cannot purchase all materials produced by the manufacturer. Distributors are not willing to handle materials when too many distributors handle the product, or when the manufacturer also sells the product directly to retailers or contractors.

Most distributors suggest that a detailed promotion program would have to be developed in conjunction with the manufacturer. It will include information related to the product's distribution system, pricing, supply, packaging and promotion. A schedule for market testing and preparation of an active marketing plan designed to reach target markets would also have to be developed. It would have to focus on the positive characteristics of aspen to remove any preconceived notions about aspen being a "weed" tree and unsuitable for most uses.

4.2.2 Retailers

Types of Retailers and Their Functions

Retailing consists of all activities involved in the sale of products and services to the ultimate consumer for his or her own use. It involves not only sales in retail stores, but also telephone and mail-order sales, automatic merchandising, and direct house-to-house solicitation by salespersons.

Retail stores account for approximately 97 percent of total retail sales in Canada and may be divided into three categories: limited line or single line stores; specialty stores; and general merchandise retailers.[9] Non-store retailing which includes house-to-house retailing, mail-order retailing, and automatic merchandising machines, provide maximum consumer convenience and represents approximately 2.5 percent of all retail sales.[10]

Single-line or limited line retail stores can be divided into convenience and shopping stores. Convenience stores sell products that the consumer wants to purchase frequently, immediately, and with a minimum of effort, such as bread, milk, newspapers, and gasoline. Retailers usually carry several competing brands of convenience products and are unlikely to promote any particular brand. The promotional burden generally falls on the manufacturer. The firm must advertise extensively to develop consumer acceptance for its product.

Shopping stores sell products to consumers only after they have made comparisons of similar goods in competing stores on such bases as price, quality, style, and color. Shopping stores can be single-line and limited-line stores, which sell a large assortment of one line of products, or a few related lines of goods. Retailers in this category include furniture stores, hardware stores, building supply stores, home improvement centers, appliance stores and sporting goods stores. These retailers choose to cater to the needs

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9. Statistics Canada, Market Research Handbook, CS63-224, 1977
10. Ibid

of a specific target market (such as the DIYer). Brands are often less important for shopping than for convenience goods. Since purchasers of shopping goods will expend some effort in making purchases, manufacturers utilize fewer retail stores than they do for convenience goods. Furthermore, retailers will expend more effort in selling an exclusively distributed name of products.

A specialty store typically handles only part of a single line of products. However, this narrow line is stocked in considerable depth for the customers of specialty stores. Although some of these stores are operated by chains, most are run as independent small-scale operations. Examples of these types of stores include lumber yards, meat markets, men's shoe stores, furriers, etc.

General merchandise stores are considered those retailers which carry a wide variety of product lines, all of which are stocked in some depth. Retailers included in this category include home improvement centres, department stores, variety stores, and discount houses. A home improvement centre is actually a series of limited-line and specialty stores under one roof. It serves the consumer by acting as a one-stop shopping centre for almost all building supply needs. The entire store is generally organized around departments for the purposes of service, promotion, and control. A manager is responsible for the entire store's product planning. Reporting to the manager are the buyers who manage each department. The buyers typically run the departments almost as independent businesses and are given considerable discretion in merchandising and lay-out decisions. Home improvement centres have relatively high operating costs, averaging between 40 and 50 percent of sales.

Chain stores are a group of retail stores that are centrally owned and managed and handle the same lines of products. The major advantage possessed by chain operations over independent retailers is economies of scale. Volume purchases through a central buying office allows such chains as Revelstoke, Beaver Lumber and Hometown to obtain lower prices than independents. Since a chain such as Revelstoke has numerous retail stores, there are specialists in layout, sales training, and accounting systems available to increase efficiency and advertising can also be effectively used. In total, chain stores sales volumes are approximately one-third of all retail sales.11

Distributors and retailers interviewed state that most wood mouldings and related products are sold by home improvement center retailers. Other retailers which sell these products include department stores, lumber yards and building supply stores. Home centre retailing, which began to emerge in Canada in the mid 1960's, combines elements of mass merchandising and the cash and carry principal. Retailers created "one stop" retail outlets to service the building and home renovation market. Home centers typically carry the following products: lumber, plywood, wall panelling, moulding, doors, windows, roofing products, hand tools, power tools, floor coverings, lawn products, garden products, kitchen cabinets, ceiling products, and sometimes major appliances.

Generally, home center retailers concentrate on lower priced products, but this trend is changing slowly as the demand for more highly priced merchandise grows. Home center retailers report that the DIY'er consumer is their main customer. Commercial builders and contractors are only responsible for a very small percentage of sales. Retailers interviewed state that most wood mouldings and

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11. Ibid.

related products are purchased from distributors. Buyers consider that distributors are able to perform some inventory, pricing and delivery functions more economically than they could. Despite home center buyers' stated preference for dealing only with distributors, they do purchase a portion of their merchandise direct from manufacturers such as Alexandria Moulding. Brokers are used very infrequently.

Major Building Supply Retailers in Western Canada

Table 4.3 lists the major home center chains operating outlets in Alberta, Saskatchewan and B.C. Independently owned and operated home centers located in Alberta's major centers are listed in Appendix B. Alberta Retail and Service Trade Statistics show that 195 building supply outlets operated in the province in 1983. The receipts from sales at these stores totalled $398,648,000.[12] A breakdown of the number of outlets and receipts by population category is presented in Table 4.4.

Table 4.4 shows that most building supply stores are located in cities. Edmonton and Calgary report the largest number of outlets per city. There also appears to be a relationship between population categories and average sales per outlet. The larger the city the higher the average receipts from sales per outlet. This verifies a statement made by a product manager at Revelstoke Stores that 12 urban home centres and 3 superstores located in large urban centers contribute more than half the sales receipts for all 76 Revelstoke outlets.

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[12] Alberta Treasury; Bureau of Statistics, Alberta Retail and Service Trade Statistics 1983, June 1985

Table 4.3
Major Building Supplies Chains in Alberta

	Head Office/ Regional Office	Number of Branches in Western Canada
Beaver Lumber	Edmonton (Western)	59
	Toronto (Head)	
Crown Stores	Calgary	30
Imperial Lumber	Edmonton	8
Revelstoke Companies Ltd.	Calgary	76
Totem Building Supplies	Calgary	7
Windsor Plywood	Surrey	56

Table 4.4
Building Supply Stores in Alberta
Receipts from Sales
1983

Population Categories	Number of Outlets	Receipts from Sales	Average Receipts Per Outlet
Calgary	23	$ 97,811,000	$4,252,652
Edmonton	21	80,767,000	3,846,048
Other Cities	33	114,920,000	3,482,424
Towns (5,000 and over)	27	36,192,000	1,340,444
Communities (less than 2,000)	59	41,677,000	706,390
	195	$398,648,000	

Source: Alberta Treasury; Bureau of Statistics

All building supply chains interviewed have a central head office which makes major purchase decisions, and selects new merchandise for inclusion in the firm's product line. Typically, a product manager is assigned one product or product line and is given complete responsibility for determining objectives and establishing marketing strategies. The manager sets prices, develops advertising and sales promotional programs, and works with distributors or sales representatives in the field.

Product managers frequently meet with distributors and manufacturers to discuss new product ideas. Most retailers interviewed expressed a willingness to either deal directly with a manufacturer or through a distributor, if preferred by a manufacturer. Decisions to include a new product in the retailer's product line, are usually made on the basis of certainty of supply, efficiency of the product, price, services and perceived acceptance of the product by consumers.

Frequently a retailer will test market a product in a specific city or area considered typical of the total market, to determine consumer reactions to the new product.

Independently owned and operated building supply outlets may employ several buyers who specialize in purchasing certain product categories. In an attempt to compete with chains some outlets have joined retail cooperatives, wholesaler sponsored voluntary chains, or franchise operations. Others have attempted to exploit their advantages of knowledge of local market conditions and advantages of flexibility in operations.

Retail cooperatives are established by a group of retailers who set up a wholesale operation to better compete with chains. The retailers purchase shares of stock in a wholesale operation and agree to purchase a minimum percentage of their inventory from the firm. The members may also choose to use a common store name such as Link Hardware. They may also develop their own private brands in order to carry out cooperative advertising. Buyers at either the store or wholesaler make purchase decisions depending on the product. Wood mouldings and wall panelling purchase decisions are generally made by the wholesaler. Once new products and manufacturers are approved, retailers have the option to carry an inventory of the product, if desired.

Wholesale-sponsored voluntary chains are chains where a wholesaler enters into a formal agreement with a group of retailers. The retailers agree to use a common name, have standardized facilities, and purchase the wholesaler's products. The wholesaler often develops a line of private brands to be stocked by the members of the voluntary chain. A common store name and similar inventories allow all the retailers to achieve cost savings on advertising. The purchase decisions are generally made by the wholesaler. Purchase decisions related to wood moulding and wall panelling are generally made by the retailer. These materials are usually acquired from preferred suppliers. Individual stores also have the option of stocking a particular item. An example of this type of chain is Home-All Hardware.

A franchise is an agreement whereby dealers agree to meet the operating requirements of a manufacturer or other franchisor. The dealer typically receives a variety of marketing, management, technical and financial services in exchange for a specified fee. All purchase decisions are made by the manufacturer or franchisor. The decisions made by dealers are the quantities of materials to be purchased.

Marketing Considerations

Home center buyers cited competitive pricing and availability as the most important determining factors when selecting new merchandise.

Buyers prefer to deal with distributors who are able to perform some inventory, pricing and delivery functions, since they prefer to maintain a small inventory of products. As a result, short turn around in orders is also important. The location of the manufacturer and the ability to customize does not affect the buying patterns of retailers. Frequent contact with, or popularity of the manufacturer, is not considered important. Packaging of the product is important, not for display, but for shipping of the goods.

Buyers or product managers use trade publications frequently. Particularly when they are actively looking for new product ideas. They also attend relevant trade shows, whenever possible. Most buyers also meet with manufacturers and distributors to discuss new products. They prefer to review comprehensive product programs related to the distribution system (drop shipments or bulk deliveries), price, and supply of a new product, during sales visits.

Table 4.5

Unfinished Wood Moulding Sales
Reported by Retailers in Alberta in 1984,
Percentage of Wood Species Sold

Wood Species	Percentage of Retail Sales
Oak	15
Mahogany	15
Fir/Hemlock	30
Fingerjointed Pine and Hem/Fir	40
Total	100

Source: Elswood Distributors.

Retailers note that there are definite seasonal aspects to the wall panelling and moulding DIYer markets. DIYers tend to undertake renovation work in the fall and winter. Sales of these products drop dramatically in the spring and summer. As a result, most retailers organize marketing programs for products intended for interior repair and renovation work in May. They start advertising the products in early fall.

Product Demand for Moulding

Elswood Distributor's estimate that unfinished wood moulding sales in Alberta retail stores totalled $4 million in 1984.[13] They also estimated that prefinished wood moulding sales totalled $1 million, or approximately 20% of the market share. A breakdown of the type of species sold is shown in Table 4.5. Wood species not mentioned in Table 4.5 represent a small proportion of wood moulding sales. Retailers also sell vinyl and plastic mouldings which also serve as competition with unfinished wood mouldings.

Most retailers handle "stock" mouldings in various profiles, such as casing, moulding, bead, stop, base, etc. and in a variety of patterns, such as colonial cove, bullnose, angle, crown, miracle, hospital and bevel. As a basic minimum, most distributors carry between 5 to 10 different profiles. Retailers frequently purchase mouldings in random or "standard" lengths. One moulding sold by several retailers is provided in 8 foot lengths. Other manufacturers provide moulding in lengths of up to 16 feet. Generally, retailers sell mouldings in 8, 10 and 12 foot lengths. All retailers interviewed handle pre-cut door jamb, stops and casing sets. The most popular wood for use as door trim is mahogany. It is popular because it is reasonably priced and it matches doors, which generally are mahogany in a "standard" house.

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13. Figures obtained from Elswood wood moulding specialist. Based on information obtained from retailers.

It is very difficult for retailers to quantify the value of mouldings sold annually. They were unable to provide the value of wood species or total annual sales. Based on the assumptions that most purchases are made from distributors, that retailers maintain a small inventory and that the figures listed in Tables 4.2 and 4.3 are correct, it is estimated that retailers in the Edmonton area sell approximately 5,780,000 linear feet of mouldings each year. Table 4.6 shows the estimated proportion of sales by wood species.

Table 4.6

Estimated Quantities of Retail Sales
of Unfinished Wood Mouldings
by Wood Species

Wood Species	Quantity of Wood Handled (linear feet)
Oak	5,490,000
Mahogany	5,490,000
Fir/Hemlock	10,980,000
Fingerjointed Pine and Hem/Fir	14,640,000
TOTAL	36,600,000

Mouldings are generally sold to the consumer "as is", and no special package considerations are required. Retailers generally receive mouldings either in crates or stickered bundles, depending on the manufacturer and distributors.

Product Demand for Wall Panelling

Retailers interviewed tend to sell two types of solid wood wall panelling. That is, 5/16" x 3 5/8" x 8' in shrink wrapped packages ranging from 14 to 20 sq. ft. or 1" x 4", 6" or 8" x 8' in stickered bundles of 20 feet. Some retailers sell both types of panelling while others sell either one or the other. The most popular panelling sold is the 5/16" x 3 5/8" x 8' package.

Most retailers sell several different qualities of wood panelling such as best, good and "utility" grades. They sell "knotty pine", oak, "knotty" and clear cedar, most of which is V joint tongue and groove. At this time, the highest proportion of wood panelling sold is cedar; followed by pine. One retail chain currently sells aspen solid wall panelling manufactured at a mill located in central B.C. It has since stopped producing aspen panelling because of the limited availability of a guaranteed lumber supply. Another retail chain sold aspen solid wall panelling as a one time product. The two chains, Windsor Plywood, in particular, were very pleased with the product and its quality. They stated that no consumers reported problems with warping, denting or any defects in the panelling. Poplar as panelling was accepted very well by DIY'ers.

Chain stores interviewed state that on the average, urban outlets tend to sell between 25,000 - 40,000 fbm of panelling each year. The largest proportion of this is cedar panelling followed by pine panelling. Independently operated stores probably sell 10,000-40,000 fbm depending on the store's location and size.

Potential of Introducing Poplar

Retailers interviewed were shown samples of wood mouldings, dowelling and wall panelling made of poplar, to assist in determining the market potential of these products. All those interviewed were impressed with poplar's appearance. No retailers expressed concerns related to poplar's properties or characteristics. Many likened its appearance to that of pine. Most retailers state that given a competitive price and guaranteed supply of moulding and wall panelling, they would seriously consider including the products in their product lines.

All retailers agreed that clear 8 foot poplar mouldings could be sold in the DIY market, if prices were competitive. Poplar moulding used as trim around poplar and knotty pine wall panelling would have a definite competitive advantage over other types of wood used in clear applications since there are no low priced, light colored wood species. As a moulding, buyers felt it should be priced slightly lower than fir/hemlock to make it competitve.

Several retailers state that the ability to supply poplar panelling in various grades, which would include clear, knotty and stained wood boards, may make it appealing to a wider range of consumers. Most felt that it should be priced in a range similiar to that of pine, at least initially, until it is accepted by consumers.

Several retailers suggested that it would be most effective to sell poplar mouldings and wall panelling together, rather than only one of the products. As a matter of fact, one large chain stated that unless the two were available, it was doubtful that only one would be stocked in stores.

All retailers were asked which profiles or patterns would have the most potential, if they were made of poplar and which profile had the highest value of sales. However, no retailers were able to identify specifically which profiles are most popular. They suggested that they would discuss poplar product requirements with a manufacturer when the industry is established.

Most retailers stated that they would be willing to deal either with a distributor, or directly with a manufacturer, whichever was desired. Typically, buying programs involving manufacturers are formulated so that the manufacturer ships materials to outlets under a "prepaid" program. Under this program, manufacturers would maintain a central stock warehouse so that immediate deliveries could be made to the retailers. In order to be competitive, manufacturers would be required to deliver services similar to those offered by distributors. Services might include drop-shipment programs, price-coded items, in-store shelf stocking and inventory control of the retailer's own stock. Although a manufacturer would not have to provide all these services, it would have to give serious consideration to providing most of them.

Buyers indicated that the manufacturer's inability to provide enough stock to supply all stores in a chain would not be a deterrent to their stocking a particular product. Retailers stated that a program could be developed where the product would be sold only in a particular region or in particular stores. It was considered best that a new venture or product idea be presented to retailers in the spring, when major purchase decisions related to interior building materials are being made. At that time, price, type of product and quantities available, should be presented to the retailer.

4.2.3 End Users of Products

The ultimate end user of mouldings and related products are consumers or DIYers, building contractors, and other manufacturers. All potential products could be used in new house construction, renovation/repair work, or in the manufacture of window components and millwork products.

Most DIY'ers and building contractors tend to buy "stock" products when purchasing material for utilization in "standard" houses. Price is the major determinant in selecting a material. Color of wood, quality, and wood species are also somewhat important. However, this user group usually is willing to compromise quality for price. Most of these users tend to buy products in retail stores rather than from custom manufacturers because they tend to cost less and are usually immediately available. Retail stores are also convenient because the DIYer and building contractor can purchase all other materials needed to complete a project. This user group accounts for the largest proportion of retail sales. It usually purchases materials in the fall and winter when most interior building projects are undertaken. The wood species most frequently purchased by this user group includes pine, cedar, mahogany, fir/hemlock, and fingerjointed pine.

Building contractors or DIYers involved in constructing or renovating upgraded homes or commercial buildings are more inclined to use custom moulding and wall panelling. This user group considers color of wood, wood species, personal taste/style and workmanship to be major determinants when selecting a building material. Price for this target group is only relatively important. This user group will purchase materials from retailers or directly from custom manufacturers, if necessary. Retailers are beginning to carry more building materials to meet the needs of this target group, however, this user group continues to constitute a small proportion of retail sales. The wood species most frequently utilized by this user group include oak, fir/hemlock and small quantities of cedar, pine, birch, maple and other woods.

Other manufacturers utilize wood in the manufacture of windows and millwork such as cabinets. They tend to use wood species such as pine, spruce, fir/hemlock, and a variety of hardwoods. Most manufacturers purchase directly from the custom manufacturer. However, approximately 20 percent deal with distributors. This target group usually purchases products to meet their own required specifications. Their are no seasonal aspects to their purchases and they generally purchase materials when needed. The major factors affecting the selection of a product includes price and ability to meet strength, moisture resistance, and other standards.

4.3 Analysis of Markets

This section will serve as an analysis of the markets. It also recommends the distribution channel which would be most effectively employed by a small scale wood products industry.

The target markets for potential products are distributors, retailers, or the ultimate end user. The ultimate end users in all cases are the consumer or DIYer and the building contractor. Other manufacturers would also purchase products from distributors and manufacturers. All potential products could be used in new house construction, renovation/repair work, window components, or millwork products.

Findings of the market assessment indicate that Alberta should be considered as the primary market area, while Saskatchewan and B.C. could be considered secondary markets for these products. At a later date the manufacturer may be able to expand its market area to include California and Japan. The rationale for selecting the market area is as follows:

1) Most distributors and retailers interviewed are regionally based. They have branches located throughout B.C., Alberta and Saskatchewan, or they service these market areas.
2) The manufacturer may require a regional market in order to support its business.
3) Alberta was considered as the primary market because manufacturers may have a competitive advantage over out of province manufacturers since they can offer reduced transportation costs.
4) Some customers have purchase policies which give preference to local firms.

Distributors and retailers indicate that wall panelling sales are growing somewhat, while moulding sales remain steady. Since wall panelling is an optional residential building material, its sales are greatly affected by the consumer's taste, and the trend in house design and decoration. An examination of trends shows that solid wood wall panelling is reaching maturity in its product life cycle.

Although the market is becoming saturated, it may be a good time to introduce a new product such as poplar, because people may be receptive to an innovative alternative to the "common" wood panelling currently available. Mouldings, on the other hand, are made of a material which will be required until there is a change in building construction methods. Therefore, now is a good time to introduce poplar when consumers prefer natural woods to synthetic vinyl and prefinished residential building materials.

A manufacturer could sell directly to a retailer, distributor, or to the ultimate end user, as described in the previous section. The target group basically remains the same if the manufacturer sells to a retailer or distributor: only the distribution mechanism changes. However, the target market is somewhat different if the manufacturer produces custom products and sells directly to the end user. The following will provide a brief summary of the efficiency of using a traditional marketing channel (manufacturer - wholesaler - retail) compared with using a more direct approach for the sale of "stock" wood products.

Distributing Via a Wholesaler Distributor

- would be able to give the product wider market coverage
- would assist with the promotion of the products
- would provide the distribution channel preferred by retailers
- would know the local and distant market and could effectively address the market
- would provide product support in terms of after sales service and distribution
- would have an expert knowledge of the local retailers and know which ones specialize in a particular product and market sectors
- could better collect accounts receivable and control credit levels at the retail level
- could provide meaningful feedback from the market for new product requirements and any existing product deficiencies
- would purchase large quantities and route small orders to the retailer, thereby realizing savings in transportation costs

- would generally provide an effective front line sales and marketing which manufacturers would find hard to replicate on a direct basis in a cost effective manner.

Distributing Directly to Retailer

- could be manageable on a local basis, but on a wide basis small manufacturers might have problems in such aspects as distributing small orders cost effectively
- would be competing against well established preferred suppliers which may be difficult
- would have to provide retailers with similiar services offered by distributors
- would be required to maintain a warehouse and employ sales staff unless brokers were used.

As illustrated above, there appears to be little doubt that a wood manufacturer would most effectively distribute "stock" wood products through a distributor. If the manufacturer expands production at a later date, it may be worthwhile to reevaluate the effectiveness of the distribution channel. However, at this time, it would be more cost effective to deal through a distributor.

The manufacturer should closely examine the distributor's distribution system, its market coverage, range of services, promotional programs, and cost prior to selecting a distributor. It would also be useful to talk to other manufacturers and retailers who use the distributor to obtain feedback about the distributor. Once the distributor has been selected, an agreement can be established to market the products.

Distributors interviewed state that in most cases, manufacturers must sign an agreement stating they will use that distributor, exclusively (in most cases) over a prescribed time, which may be up to 3 years. This is a safeguard for distributors. It prevents manufacturers from leaving a distributor shortly after the wholesaler has spent time and money promoting the product.

4.4 Detailed Description of Products

Section 2.2 presented a list of potential types of products that might be produced in a relatively small scale industry. The products utilize grades and sizes of poplar that are readily available. A random sampling of a mill run at Snow Goose Industries, indicates that clear poplar products may constitute 10% of production. The balance of products would be knotty and/or stain grades which could readily be utilized in wall panelling. Lumber with limited stain could also be used in the production of mouldings. The products examined in the market assessment fall into 4 basic categories: moulding, wall panelling, closet rods and cabinet stock. Poplar prototypes of moulding, wall panelling and closet rods were produced to show retailers, distributors and other manufacturers what the potential products could look like. This was done mainly because most people are not familiar with the appearance of poplar, or the technical feasibility of using it for these applications. Of those interviewed, only two product managers had seen poplar wall panelling before. All others were unfamiliar with the ability to use poplar for interior building applications. It soon became apparent that if these products are manufactured, a comprehensive program will have to be implemented to make businesses and consumers aware of this new product.

The following will provide a detailed description of the products which can be manufactured by a small scale industry. It will also present price levels which manufacturers may consider when selling these products.

Types of Products Currently Available

Table 4.7 lists the most common types of wood moulding and door sets sold by retailers. There are many other types available. However,

Table 4.7

Type of Wood Mouldings Sold By Retailers

Product	Specification By Wood Species	Wood Species Retailers Most Frequently Stock: Clear Cedar	Solid Mahogany	Solid Oak	Fingerjointed Pine	Fir/ Hemlock
Burlap	1 5/8"				X	X
Burlap	2 1/4"				X	X
Bevel Casing	1 5/8"	X	X		X	X
Bevel Casing	1 9/16" x 7-16'			X		
Bevel Casing	2 1/4" x 7-16"		X		X	X
Colonial Stop	1 1/4' x 7-8'			X		
Colonial Casing	2 1/4" x 7			X	X	X
Colonial Base	3"			X		
Miracle Casing	2 1/4"	X				
Hospital Base	1 5/8"		X		X	X
Hospital Base	2 1/4"		X		X	X
Chair Rail	1 3/4"			X		
Crown Mould	1/2" x 3/4"	X			X	X
Crown Mould	5/8" x 1 1/4"	X			X	X
Crown Mould	1 1/2"			X		
Panel Mould	3/4"			X		
Panel Mould with lip	3/4"			X		
Quarter Round	1/2"		X			
Quarter Round	3/4"		X		X	X
Quarter Round	11/16"			X		
Cove	1/2"		X			
Cove	3/4"	X	X		X	X
Cove	11/16"			X		
Angle Bead	3/4"	X	X	X	X	X
Angle Bead	1 1/16"	X	X		X	X
Bullnose Stop	1 1/4"		X		X	X
Carpet Strip	1/2" x 3/4"				X	X
Rectangle	3/8"x11/16-8'				X	X
Decorative	9/16"x11/8"-8'				X	X
Screen	3/8"x3/4"-8'				X	X
Moulding-Door Trim Sets[1]						
Door Stop	1 1/8"		X		X	X
Door Stop	3/8"x1 1/4"		X		X	X
Casing	7/16"x1 1/2"		X		X	X
Casing	1 5/8"		X		X	X
Casing	7/16"x2 1/4"		X		X	X
Jamb 1x5	11/16"x4 9/16"		X		X	X

they are generally purchased in smaller quantities. Other custom mouldings are also distributed by custom manufacturers, as required. An examination of Table 4.7 shows that fir, fingerjointed pine, mahogany and cedar mouldings, are available in several basic profiles. The specifications of oak mouldings tend to be slightly different. Oak is also available in a different range of profiles. The mouldings that could be manufactured by a small scale poplar industry are listed in Table 4.8. These moulding profiles were selected for several reasons as follows:

1. The profiles are currently the most popular types of mouldings sold;
2. The profiles are typically available in competitive wood mouldings such as fir, mahogany, fingerjointed pine;
3. It is best to start producing a narrow range of products, yet also have a wide enough range of products to provide an adequate line of products.

Table 4.9 lists the sizes and wood species of solid wood wall panelling and finishing lumber that are readily available in the market place. Some retailers stock various sizes of wall panelling while others tend to stock one size in different qualities of wood. Most retailers sell finishing lumber in a range of dimensions. As shown in Table 4.9, most retailers sell cedar, pine and oak in packages ranging in size from 14 sq.ft. to 20 sq.ft. The packages are available in a range of qualities from premium to economy grade. Wall panelling produced in 5/16"x3 5/8" sizes are shrink wrapped prior to distribution. Wall panelling available in 1"x4", 6", or 8" sizes, are stickered and capped with cardboard at the ends. At this time, it is very difficult to recommend the size of wall panelling that should be produced, because it is somewhat dependent on which distributor is used. Some distributors only deal with a certain dimension of wall panelling. However, regardless of the size, the wall panelling should be made available in threc grades of wood: premium, medium grade, and finally, an economy type

Table 4.8

Recommended Wood Mouldings to be Manufactured by a Proposed Plant*

Product	Specification	Quality of Wood Required
Bevel Casing	7/16"x1 5/8"x8'	Clear, with limited stain
Bevel Casing	7/16"x2 1/4"x8'	Clear, with limited stain
Colonial Casing	7/16"x2 1/4"x8'	Clear, with limited stain
Colonial Base	7/16"x3"x8'	Clear, with limited stain
Hospital Base	7/16"x1 5/8"x8'	Clear, with limited stain
Hospital Base	7/16"x2 1/4"x8'	Clear, with limited stain
Cove	3/4" x 8'	Clear, with limited stain
Angle Bead	3/4" x 8'	Clear, with limited stain
Quarter Round	3/4" x 8'	Clear, with limited stain
Moulding-Door Trim Sets		
Door stop	1 1/8"	Clear, with limited stain
Door Jamb 1x5	11/16"x4 9/16"	Clear, with limited stain
Bevel Casing	1 5/8"	Clear, with limited stain
Colonial Casing	7/16"x2 1/4"	Clear, with limited stain

* Based on market findings.

Table 4.9

Type of Wood Wall Panelling and S4S Boards Sold by Retailers by Wood Species

Solid Wood Panelling Tongue and Groove	Specification	Total Sq. Ft.	Pine	Finger-Jointed Pine	Cedar	Oak	Mahogany
Sound Tight Knot	5/16x(3 5/8")4"	14-16.3	X		X		
Clear	5/16x(3 5/8")4"	14-16.3			X	X	
Clear	1"x4"	20			X		
Clear	1"x6"	20			X	X	
Knotty	1"x6"	20	X		X		
Clear	1"x8"	20			X	X	
Knotty	1"x8"	20	X				
S4S (Finishing) Lumber							
Boards	1"x1"x3'-8'					X	
Boards	1"x2"x3'-8'		X		X	X	
Boards	1"x3"x3'-8'			X	X	X	X
Boards	1"x4"x3'-8'		X	X	X	X	X
Boards	1"x5"x3'-8'			X	X	X	X
Boards	1"x6"x3'-8'		X	X	X	X	X
Boards	1"x8"x3'-8'		X	X	X	X	X
Boards	1"x10"x3'-8'			X	X		X
Boards	1"x12"x3'-8'			X	X		X

grade. These grades are frequently determined by several factors; quality of the wood, quality of the milling, cracks, etc. Wall panelling could be made available as clear, a select tight knot with varying proportions of stain, and as a utility type. All wall panelling could be made available in a tongue and groove pattern, initially. At a later date other patterns could also be produced.

Closet rods and cabinet stock made of poplar were not as enthusiastically received as moulding and wall panelling. However, they may have limited market potential. Several distributors stated that most closet rods used in new house construction tend to be metal. There is also a trend to purchasing closet rods made of metal. Other distributors were concerned that poplar closet rods may not have the strength for this function. If closet rods were fingerjointed it should not pose a problem. But even so, if an industry desired to manufacture closet rods it would be best to first conduct strength tests to determine whether or not poplar was suitable for this application. The test could either be done by the industry or by Alberta Research Council.

Price

Price is an important determinant in choosing a supplier of products. While buyers make their purchase decisions on a number of criteria, (quality, price and reliability), price is usually the most important factor. The majority of the respondents to this survey felt price was an important or very important criteron in selecting a supplier. Another extremely important criteron, was the ability to meet delivery dates.

Tables 4.10 and 4.11 present wood mouldings, wall panelling and finished lumber retail list prices. Mark up estimates on these products are listed below and are based on findings of interviews with distributors and retailers. They show that the price range at which manufacturers generally sell wood products is approximately 30 to 40% of the retail sale price.

Table 4.10
Prices of Wood Mouldings*
October, 1985

Product	Specifications	Retail Price Range (per lineal feet)	Manufacturers Price Range (FOB)
Burlap	1 5/8"	$0.19 - 0.25	$0.07 - 0.10
Burlap	2 1/4"	0.26 - 0.30	0.10 - 0.12
Bevel Casing	1 5/8"	0.24 - 0.33	0.09 - 0.13
Bevel Casing	1 9/16" x 7	0.70 - 0.80	0.28 - 0.32
Bevel Casing	2 1/4" x 7	0.27 - 0.35	0.10 - 0.14
Colonial Stop	1 1/4' x 7	0.30 - 0.57	0.12 - 0.22
Colonial Casing	2 1/4"	0.32 - 1.10	0.12 - 0.44
Colonial Base	3"	0.90 - 1.45	0.36 - 0.58
Miracle Casing	2 1/4"	0.30 - 0.49	0.12 - 0.19
Hospital Base	1 5/8"	0.24 - 0.30	0.08 - 0.12
Hospital Base	2 1/4"	0.25 - 0.36	0.10 - 0.14
Chair Rail	1 3/4"	1.00 - 1.20	0.40 - 0.48
Crown Mould	1/2" x 3/4"	0.14 - 0.20	0.05 - 0.08
Crown Mould	5/8" x 1 1/4"	0.23 - 0.37	0.09 - 0.14
Crown Mould	1 1/2"	0.76 - 1.00	0.30 - 0.40
Panel Mould	3/4"	0.61 - 0.79	0.24 - 0.31
Panel Mould with lip	3/4"	0.90 - 1.16	0.36 - 0.46
Quarter Round	1/2"	0.17 - 0.26	0.06 - 0.10
Quarter Round	3/4"	0.19 - 0.40	0.07 - 0.16
Quarter Round	11/16"	0.69 - 0.73	0.27 - 0.29
Cove	1/2"	0.22 - 0.26	0.08 - 0.10
Cove	3/4"	0.20 - 0.40	0.08 - 0.16
Cove	11/16"	0.61 - 0.74	0.24 - 0.29
Angle Bead	3/4"	0.23 - 0.68	0.09 - 0.27
Angle Bead	1 1/16"	0.55 - 0.69	0.22 - 0.27
Bullnose Stop	1 1/4"	0.25 - 0.31	0.10 - 0.12
Carpet Strip	1/2" x 3/4" x 8'	0.18 - 0.25	0.07 - 0.10
Rectangle	3/8"x 3/4 x 8'	0.12 - 0.17	0.04 - 0.06
Decorative	9/16"x11/8"-8'	0.18 - 0.25	0.07 - 0.10
Screen	3/8"x3/4"-8'	0.18 - 0.25	0.07 - 0.10
Moulding-Door Trim Sets			
Door Stop	1 1/8"	1.49 - 3.24	0.59 - 1.29
Door Stop	3/8"x1 1/4"	1.99 - 2.76	0.79 - 1.10
Casing	7/16"x1 1/2"	3.69 - 5.49	1.47 - 2.19
Casing	1 5/8"	2.99 - 4.99	1.19 - 1.99
Casing	7/16"x2 1/4"	4.99 - 7.99	1.99 - 3.19
Jamb 1x5	11/16"x4 9/16"	11.88 - 18.99	4.75 - 7.59

* Fingerjointed Pine, Mahogany, Fir, Oak.

Table 4.11

Prices of Wall Panelling and Finished Lumber
October, 1985

Product	Specifications	Retail Price Range	Manufacturers Price Range
Solid Wood Panelling			
Tongue and Groove			
Clear Cedar	1"x6"	$1833-1958/M FBM*	$733-783/M FBM
Select Knot Cedar	1"x4"	1250-1375/M FBM	500-550/M FBM
Select Knot Cedar	1"x6"	1633-1758/M FBM	653-703/M FBM
Ponderosa Pine Gr2	1"x6"	1083-1208/M FBM	433-483/M FBM
Ponderosa Pine Gr3	1"x6"	725- 850/M FBM	290-340/M FBM
Ponderosa Pine Gr3	1"x8"	625- 750/M FBM	250-300/M FBM
Oak			
Panelling Packages			
Clear Cedar	5/16"x4"(16.3sq.ft)	$15.00-18.00/pkg.	$6.00-7.20/pkg.
Select Knot Cedar	5/16"x4"(16.3sq.ft)	14.00-16.00/pkg.	5.60-6.40/pkg.
Knotty Pine Grade #1	5/16"x4"(16.3sq.ft)	10.30-12.50/pkg.	4.12-5.00/pkg.
Low Grade Knotty Cedar	5/16"x4"(16.3sq.ft)	12.15-13.50/pkg.	4.86-5.40/pkg.
Low Grade Knotty Pine	5/16"x4"(16.3sq.ft)	7.00- 8.50/pkg.	2.80-3.40/pkg.
Oak			
S4S (Finishing) Lumber	1"x2"	0.28-1.21/lin.ft.	0.11-0.48/lin.ft.
Mahogany, pine, cedar, or oak	1"x3"	0.42-1.72/lin.ft.	0.16-0.68/lin.ft.
Mahogany, pine, cedar, or oak	1"x4"	0.52-2.36/lin.ft.	0.20-0.94/lin.ft.
Mahogany, pine, cedar, or oak	1"x5"	0.86-3.22/lin.ft.	0.34-1.28/lin.ft.
Mahogany, pine, cedar, or oak	1"x6"	0.96-3.87/lin.ft.	0.38-1.54/lin.ft.
Mahogany, pine, cedar, or oak	1"x8"	1.44-5.49/lin.ft.	0.57-2.19/lin.ft.
Mahogany, pine, or cedar	1"x10"	1.80-2.40/lin.ft.	0.75-0.96/lin.ft.
Mahogany, pine, or cedar	1"x12"	2.30-2.75/lin.ft.	0.92-1.10/lin.ft.

* 1000 Board Feet.

Price Structure of Wood Products

Manufacturer Cost	30 - 40%
Wholesaler Cost	20%
Retailer Cost	40 - 50%
Total Retail Price	100%

Based on these estimates manufacturers prices are derived and included in Tables 4.10 and 4.11. Since price determination of new products is affected by the number of similar products on the market, it is important to relate these products to the proposed poplar products. An acceptable market price for poplar products is determined by examining the price spectrum of similar products. Factors to take into account include competitive products, competitors' price sensitivity to the target customer, and supply and demand. Although labour production costs, material costs, selling costs, fixed and variable overhead, and profit must be considered in determining specific prices, they will not be discussed at this time. The prices presented in this section are strictly price ranges based on market conditions. The cost to produce products will be discussed in Section 9.

Results of the market assessment indicate that if poplar moulding and wall panelling are sold in the price ranges shown in Table 4.12 they would have high market potential. Most distributors and retailers interviewed state that they would consider stocking poplar if the prices were reasonable, a supply could be guaranteed, and an acceptable volume of products were available as required.

It is very important that the manufacturer develop a comprehensive promotional strategy to stimulate sales to prospective buyers. The types of promotional activities that could be used are determined, in part, by the type of product sold, the state of the market, the product's location in the product life cycle, competitive activity, the company's objectives, and the distribution channel.

Table 4.12

Recommended Price Range for Poplar Wood Mouldings, Wall Panelling and Finished Lumber Based on Market Findings

Product	Specifications	Retail Price Range	Manufacturers Price Range
Bevel Casing	7/16"x1-5/8"	$ .27-.32/lin.ft.	$ .10-.12/lin.ft.
Bevel Casing	7/16"x2-1/4"	.32-.35/lin.ft.	.12-.14/lin.ft.
Colonial Casing	7/16"x2-1/4"	.35-.37/lin.ft.	.14-.15/lin.ft.
Colonial Base	7/16"x3"	.45-.50/lin.ft.	.18-.20/lin.ft.
Hospital Base	7/16"x1-5/8"	.20-.25/lin.ft.	.08-.10/lin.ft.
Hospital Base	7/16"x2-1/4"	.30-.35/lin.ft.	.12-.14/lin.ft.
Cove	3/4"	.20-.25/lin.ft.	.08-.10/lin.ft.
Angle Bead	3/4"	.30-.35/lin.ft.	.12-.14/lin.ft.
Quarter Round	3/4"	.32-.37/lin.ft.	.12-.14/lin.ft.
Moulding-Door Trim Sets*			
Door Stop	1-1/8"	2.50- 3.00	1.00- 1.20
Door Jamb 1x5	11/16"x4-9/16"	13.50-15.00	5.40- 6.00
Bevel Casing	1-5/8"	3.75- 4.50	1.50- 1.80
Colonial Casing	7/16"x2-1/4"	4.90- 5.50	1.96- 2.20
Solid Wood Wall Panelling			
Clear Poplar	1"x6"	1625-1875 M FBM	650-750 M FBM
Select Knot	1"x6"	1500-1625 M FBM	600-650 M FBM
Select Knot with Stain	1"x6"	1000-1125 M FBM	400-450 M FBM
Low Grade	1"x6"	687- 812 M FBM	275-325 M FBM
Package-Clear	5/16"x4"(16.3 sq.ft)	14.00-15.00	5.60- 6.00
Select Knot	5/16"x4"(16.3 sq.ft)	10.50-12.70	4.20- 5.08
Select Knot with Stain	5/16"x4"(16.3 sq.ft)	10.00-11.30	4.00- 4.52
Low Grade	5/16"x4"(16.3 sq.ft)	7.50- 8.50	3.00- 3.40
S4S Finishing Lumber			
Board	1"x2"	.22-.25/lin.ft.	0.08- 0.10
Board	1"x4"	.41-.45/lin.ft.	0.16- 0.18
Board	1"x6"	.76-.80/lin.ft.	0.30- 0.32
Board	1"x8"	1.15-1.20/lin.ft.	0.46- 0.40

* 2 pieces 7 feet, 1 piece 3 feet.

5.0 COMPETITIVE PRODUCTS

This section examines products and similar types of operations that would compete with the proposed poplar products. It looks at other products currently being produced using aspen, as well as moulding and related products made with other wood species, and product lines and production characteristics of similar types of operations. This will provide information about the nature and extent of the new house, renovation and DIY markets.

5.1 Poplar Competition

A review of the end-use aspen log consumption in Canada shows that most logs are used in the production of pulp and paper as illustrated in Table 5.1.

Table 5.1

End-Use Aspen Log Consumption, Canada

End-Use	Volume (thousand cum)	Percent
Pulp and Paper	1,246	45
Particleboard	1,007	36
Plywood	382	14
Lumber	118	5
Roundwood Exports	6	<1
	2,759	100

Source: "Poplar Utilization Trends and Prospects", Forintek Canada Corporation, 1980.

In western Canada, most poplar is utilized as lumber, and in the production of oriented strandboard, pallets, waferboard, furniture, oilfield skids and chopstick blanks. It is also utilized to a limited degree in cabinet making and millwork operations. Much of the poplar used in cabinet making is imported cottonwood and tulip poplar brought in from eastern Canada and U.S.A. Table 5.2 lists the principal manufacturers who use poplar in western Canada.

Table 5.2

Prinicpal Manufacturers Who Use Poplar in Western Canada

	Location	Annual Capacity	End Product
MacMillan Bloedel Ltd.	Hudson Bay Saskatchewan	132,400 cum	Waferboard
Weldwood of Canada	Slave Lake, Alberta	110,300 cum	Waferboard
Pelican Spruce Mills	Edson, Alberta	123,600 cum	Oriented Strandboard
Saskatchewan Forest Products	Hudson Bay Saskatchewan	n/a	Plywood
Weldwood of Canada	Surrey, B.C.	-	Plywood
Zeidler	Edmonton, Alberta	-	Plywood
Tackama	Fort Nelson, B.C.	-	Veneer
Zeidler	Mitsue, Alberta	-	Veneer
Sunchild Forest Products	Winterburn, Alberta	6mm fbm	Pallets, bins, gas pipe reels
Direct Lumber	Edmonton, Alberta	7mm fbm	Pallets, custom planing, re-manufactured lumber
Cypress Cabinet and Pallet Ltd.	Medicine Hat, Alberta	1.5mm fbm	Pallets, Blocking
Alberta Pallet Co.Ltd.	Airdrie, Alberta	5mm fbm	Pallets, Containers Bed Frames
Canasphere	Calgary, Alberta	600m fbm	Pallets
Canadian Forest Products	Grande Prairie, Alberta	n/a	Lath
Western General Trading Ltd.	Regina, Saskatchewan	n/a	Chopstick Blanks

Table 5.3 presents the value and unit value of poplar lumber shipped in the last seven years. It shows that the volume and value of lumber has increased somewhat over the last few years.

Table 5.3

Canada Poplar Lumber Shipments
Value and Unit Value 1975-1980

Year	Volume	Value	Unit Value ($ per cum)
1975	40	2,400	61
1976	39	2,082	54
1977	41	2,509	61
1978	48	3,262	69
1979	65	5,634	86
1980	67	5,682	85

Source: Statistics Canada, Canadian Forestry Statistics.

Poplar lumber is used both in the construction and industrial markets. Most poplar lumber produced for the building market is confined to stud size (2"x4"x8') and quality. It is usually used as a vertical support member because it is perceived as a low strength building material. Its low usage is mainly related to its non-availability and a higher price during market downturns. Poplar lumber, generally sold in its green state, is sold ungraded in the price range of $125 to $135 per 1000 Fbm delivered to Edmonton. Major buyers in Edmonton are Grove Lumber, Spruce Grove and Trail Building Supply.

Poplar lumber produced for the industrial market is sold in either the green state or it may also be kiln-dried. Most poplar used for pallets is in the form of 1 inch thick boards although some two and three inch thick boards are used. Although poplar is used extensively for pallet construction it does not meet the specification standards published by the Canadian Pallet Council. Poplar lumber purchased by pallet manufacturers is generally sold in the green state, ungraded, for approximately $125 to $135 per 1000 Fbm delivered to Edmonton. The major pallet manufacturer in the Edmonton area that uses poplar, is Sunchild Industries of Winterburn. Much of the lumber utilized by them is provided by sawmill operators in the Wildwood area.

Poplar lumber utilized in furniture manufacture must be of a "selected" quality. It is sold either green or kiln-dried, depending on the manufacturer's requirements. A major factor inhibiting the use of poplar is the requirement to provide a large number of standard sizes for use in furniture and cabinet construction. In the past, this requirement combined with long distances to eastern Canada (the major furniture producing region) made it virtually unfeasible, economically, to use poplar. Poplar is currently being utilized for furniture construction by several small firms in Alberta and northeastern B.C. Much of the poplar utilized in these operations is purchased in 1"x4"-8"x8' dimensions, either green, or kiln dried. "Selected" poplar sold for use in these operations is often green, planed, and sold in the price range of $220-$240 per 1000 Fbm delivered.

Poplar used in chopsticks production must be "selected" with very few knots because chopsticks must be constructed of clear wood. The volume of poplar utilized for the production of this product in western Canada is rather insignificant compared with other uses at this time.

Poplar used in waferboard and oriented strandboard production is acquired in 8 foot length logs. Although all logs are generally brought into each plant, oversized logs, or those that are too large to be used, are sold to sawmills or other users. Poplar used for these purposes is ungraded, and log quality is only important in that a certain overall level of quality must be maintained. Therefore all logs are used, no matter what their degree of decay or number of knots.

Poplar wall panels have recently been introduced into western Canada by a distributor. They are available in the following dimensions: 16", 24" or 48"x48" in 1/4", 7/16" and 11/16" depths. The plywood panels currently being produced in northern Ontario from white poplar trees, are chiefly used by DIYers as shelving, and for small repair jobs.

A review of supply and quality in the Wildwood area, reveals that most poplar logged in the area is sold to one of three types of manufacturer: Pelican Spruce's OSB mill, Sunchild and other pallet construction plants or several lumber yards in Edmonton. All of the lumber is sold ungraded, small quantities of "selected" aspen lumber are also sold to Snow Goose Industries wood products plant. An examiniation of existing and potential sources of competition for aspen supply in the area, shows that although there is competition for available aspen poplar in the area, adequate quantities exist for all uses. At this time there is about 6,843,900 Fbm available each year in W01 and W6. The aspen could be disposed of by a combination of Decidious Timber Allocations, Local Timber Permits and Commercial Timber Permits.

5.2 Competitive Products

The principal competitive moulding and wall panelling products are fir/hemlock, mahogany and fingerjointed pine. They completely dominate the moulding market. Cedar, pine and to a lesser degree, oak, dominate the solid wood wall panelling market.

At this time all "stock" wall panelling is imported into Alberta. Most cedar and pine is produced either in northwestern U.S.A. or British Columbia. Most oak panelling is imported from eastern Canada or U.S.A. Solid wood wall panelling is typically produced by large plants rather than by small scale operations. This is mainly related to the economies of scale. It would appear that due to the highly competitive nature of wall panelling, sales profit margins are narrow. This necessitates the production of a large volume of products in order for most companies to generate a profit. Smaller scale plants tend to deal mainly with custom orders mainly for use in commercial and industrial buildings. Custom manufacturers generally produce a higher quality of wall panelling in terms of grade, wood species and workmanship.

Wood mouldings sold in Alberta are manufactured locally, and out of the province. Most are manufactured in large plants, while others are manufactured in small scale plants. Fingerjointed pine sold in Alberta is generally purchased from plants in Ontario or northwestern U.S.A. The plants are large, and fingerjointing tends to be only a small component of the overall complex. Fingerjointing operations are generally in existence to utilize wood that cannot be used in clear moulding applications. While they are useful in utilizing wood residuals, they do not tend to generate high profit margins. The fingerjointing industry has been volatile in the past. During periods of low demand, when market prices for softwood species fall, the production costs of fingerjointing have been higher than the revenue generated by sales. As a result, there are several Alberta based companies that have gone out of business in the last five years. Therefore, it would seem that a fingerjointing operation may compliment a mill operation; but, it may not be appropriate to have it as the sole function of an operation.

Fir/hemlock mouldings account for the highest volume of sales in domestic wood mouldings. The majority of these mouldings are produced in B.C. by large multi-national corporations such as MacMillan Bloedel, Canfor, Weldwood and Sauder Industries. Millwork is a division or subsidiary of these companies. They acquire their lumber supply from other divisions, and channel their finished product into other subsidiaries for distribution. Sauder Industries, for example, has divisions which manufacture doors, mouldings, fingerjointed hemlock, prefinished wood mouldings, and it also operates as a sawmill. The subsidiary that distributes most of its products is Elswood Distributors.

Oak mouldings are either brought into Alberta from eastern Canada, or the U.S.A. Some oak mouldings are manufactured in Alberta by custom millworkers who import oak boards from eastern Canada and U.S.A. Oak mouldings are much higher in price than the other mouldings most frequently used. Red oak is the most popular type of oak utilized as wall panelling and moulding, and most distributors and retailers interviewed stated that the use of oak has been increasing in the last couple of years. But because oak is higher in price it tends to be used in upgrade situations or in commercial buildings. Its products specifications differ from the specifications of other wood mouldings, such as fir/hemlock. This further emphasizes that oak is not really competing in the same market with other mouldings. Most local custom manufacturers mill a high proportion of oak mouldings. Building contractors and consumers who upgrade homes frequently want custom oak mouldings, rather than "stock" mouldings produced by large plants. The interiors of upgraded homes or commercial buildings are frequently designed by interior designers or other knowledgeable persons, who may specify the use of a particular type of moulding which might not be standard stock. It appears that because the material is higher in price to begin with, the target markets are willing to expend an additional amount to purchase custom mouldings.

Mahogany mouldings are generally imported from the Philippines and the Orient, and to a lesser degree from the U.S.A. and South America. Although there are several qualities of mahogany available, (the U.S.A. mahogany being of a higher overall quality) most mahogany sold in the DIY market is lower quality, oriental mahogany. Most of this quality of moulding is lower in price than domestic fir/hemlock. This factor, combined with the fact that most doors used in "standard" houses are mahogany, accounts for the popularity of mahogany mouldings.

Finally, most custom manufacturers also produce special orders of maple, birch, ash, and other hardwood mouldings and wall panelling, upon request. Since these orders are sporadic in nature, it is difficult to determine the volume of production of these other types of wood mouldings.

An examination of moulding and related product competition shows that basically there are two target markets for various species of wood mouldings. One target is the user group that purchases "stock" mouldings and wall panelling from retailers. Price is the major determinant in their selection of a material. Color and species of wood is also relatively important. Wood species used by this group tend to be mahogany, pine, cedar, fingerjointed pine and fir/hemlock. Frequently this group, be it the DIYer or building contractor, tend to be either constructing a new "standard" house or renovating a "standard" house. In these cases the customer is looking for a nice looking, reasonably priced, building material. Quality of material is not extremely important, because high material costs may make the house unaffordable to the average person, or the cost may not be recovered if the house is resold. Owners of these houses tend to be fairly mobile. Therefore, they tend not to use expensive materials. On the other hand, if a homeowner expects to live in his house for a long period of time, his buying patterns may be similar to those described below.

The other target market is the DIYer or building contractor that is building or renovating a home, or commercial building. This group may be more inclined to use custom mouldings and wall panelling if required, in order to obtain a certain appearance. Price is a relatively important factor in selecting a material. However, color of wood, wood species and personal preference, are generally more important determinants when selecting a wood. Millwork used by this group is generally of a higher quality of wood and workmanship. Users would tend to utilize wood species such as oak, maple, birch, and small quantities of fir and cedar.

In the past much of this type of millwork was purchased from custom manufacturers directly. However, some home improvement centres have expanded their product lines to include a higher quality and price of building materials to meet the needs of this user group.

5.3 Analysis of Other Manufacturers

Eight wood product manufacturers were interviewed. Three are located in Calgary and five are located in Edmonton. The rationale for examining other manufacturing concerns is:

- to learn from their good and bad experiences and avoid mistakes; and,
- to examine local sources of competing products and the extent of competition associated with these.

Competition

A review of manufacturers indices and yellow pages, shows that approximately 10 firms specialize in the manufacture of moulding and wall panelling in Alberta. A list of these companies and their locations is provided in Table 5.4. These firms typically employ between 5 and 20 staff. Millworks also manufacture small quantities of mouldings and wall panelling that are custom ordered. There are approximately 100 millworks located throughout Alberta. Many of them are located in Edmonton and

Calgary or other cities. Most millworks tend to employ a small number of staff, frequently less than 10 staff.

Most Alberta manufacturers of moulding and wall panelling sell their products locally, mainly because most are small sized operations which focus on custom orders. Most manufacturers' goods are sold directly to building contractors and consumers. Small quantities are also sold to wholesale and retail outlets or other manufacturers. The volume of sales for a typical Alberta manufacturer is in the range of $750,000 to $1,200,000 per year.

Table 5.4

Moulding and Wall Panelling Manufacturers in Alberta

Firm	Location	Number of Employees*
A.B. Cushing Mills Ltd.	Calgary	10-19
A.C. Millwork Ltd.	Calgary	5- 9
Clareco Canada Ltd.	Edmonton	10-19
Classic Moulding	Calgary	10-19
Lumber City Millwork	Edmonton	10-19
Senecal Finishing Ltd.	Innisfail	1- 4
Superior Sash and Supply	Edmonton	10-19
Rago Millwork and Supplies Co.	Edmonton	10-19
Tridecks Woodwork Ltd.	Calgary	n/a
Varem Spindle Manufacturing Ltd.	Calgary	10-19

* Adapted from Alberta Economic Development, Alberta Manufacturers Index, February, 1985 or obtained in personal interview.

The types of wood products they produce include:

- doors
- windows
- mouldings and trim
- turnings
- dowel
- dressed lumber
- handrails
- wall panelling
- stair parts
- custom planing and milling
- covered shutters
- screens
- mantle pieces

They produce these products with a wide variety of wood species, but oak accounts for about 75% of all sales. Other species utilized include spruce, pine, fir, hemlock, cedar, oak, ash, birch, mahogany, and maple. Manufacturers will utilize any wood species desired by the customer. The materials used in the manufacturing of products are obtained wherever the lumber is produced. Wood is brought in from B.C., Oregon, Philippines, eastern Canada and U.S.A.

Products such as "stock" moulding and trim are generally produced in large volumes. Stockpiles of products are generally not maintained, because most products are for individual orders produced to customer specifications. Stockpiles of "stock" moulding are maintained to allow for delivery upon order when possible.

Manufacturers indicated that profit margins differ considerably between products, but overall profit margins tend to be rather low. There is a great deal of competition between manufacturers that produce "stock" building materials, and most "stock" moulding and wall panelling is imported from B.C., eastern Canada and the U.S.A.

A variety of marketing techniques are used by Alberta moulding manufacturers. Interviews clearly showed that companies which did not market well were not doing well. Those that chose to use several techniques have improved business in the last couple of years, even in the economic downturn. Those manufacturers that are doing well use several or all of the following techniques: salesmen with samples, brochures, catalogue with follow-up letters, telephone and mail orders, advertising in newsletters, newspapers, yellow pages, setting up displays at trade shows and special events and labelling and/or stamping all products. Since most potential customers deal directly with the manufacturer, it is extremely important to develop an effective marketing strategy.

The mix of promotional activities undertaken by large manufacturers of "stock" moulding and wall panelling differs greatly from the activities undertaken by small scale custom manufacturers. Most large manufacturers sell their products to distributors. Distributors will market the products to retailers and frequently will develop a market strategy for each product in conjunction with the manufacturer. Marketing techniques used by the distributor include salesmen with samples, brochures, catalogues with follow-up letters, telephone and mail orders. Manufacturers, distributors and retailers will also advertise in magazines, newsletters, newspapers, radio and television to reach end users.

Local Manufacturers

Of the eight businesses which were examined, about half suffered from the economic downturn of the early 1980's. Several businesses produced approximately one half the volume in 1984, compared with 1981. Others went out of business. The local fingerjointing industry was hit hard and several companies ceased fingerjointing operations. The companies that continued to thrive during that time, or started up during the economic downturn, all had top quality business managers.

Business managers interviewed stated that successful management in several key areas is important to the overall success of the business. They include marketing, maintaining labour productivity levels, choosing appropriate product lines, pricing and service. Therefore it is very important to hire a top quality business manager.

Marketing of the product lines is crucial to the success of the business. Good experienced sales representatives or distributors must be employed. A good sales force is necessary for penetrating the market, especially in the initial introduction of the product to the market, and for maintaining ongoing sales. Effective marketing requires client satisfaction, which arises from good customer service and product guarantees. Quality control of the businesses products should form an integral part of production process.

Product pricing should be reviewed on a regular basis to ensure price covers all costs of production: labour, materials, cost of sales, fixed and variable costs and profit. At these reviews, the proportion of price for which each of these factors accounts should be noted.

Business managers stated that the following aspects of an operation should be reviewed on an ongoing regular basis:

- pricing should cover all costs of production and distribution and be reviewed on a regular basis;

- product lines in which the business specializes should be those which best meet market demand, take advantage of employee skills and minimize material wastage;
- the quality of products should be high and should be guaranteed;
- the sales and promotion technique used should be suited to the individual products and a systematic, comprehensive coverage of the market should be provided. Promotional materials should be accurate and of high quality;
- turnaround time on orders should be consistent and as short as possible;
- the day to day management of the business should be conducted in a professional manner which inspires customer confidence in the business;
- managers should explore new markets, develop innovative designs and investigate alternate marketing techniques;
- manufacturers should provide good service and be dependable.

6.0 RECOMMENDED PRODUCT LINE

6.1 Product Selection

The products assessed in the market analysis are mainly sold in the consumer market. Small quantities are also sold to other manufacturers. In Table 6.1 products are classified according to their market potential.15 These range from high potential to limited potential. It must be kept in mind that these products can change groupings very quickly. A large contract or custom order for any one of these can change the product from having limited to good potential. These classifications are done on the basis of interviews and discussions carried out during the market overview and analysis of other manufacturers.

Table 6.1
Market Potential for Wood Products

High Potential	Good Potential	Limited Potential
Clear Moulding	Fingerjointed Moulding	Louver material
Wall paneling	Furniture blanks*	Cabinet stock
Shelving	Knock down furniture	Closet rods
Lath		Shutter material
		Spindles
		Stair rails

* Furniture blanks are wood dowelling or slats produced in specified standard sizes and qualities which are used by furniture and cabinet manufactuers.

Of the products listed above, an industry should focus their initial efforts on just a few. This will facilitate both the production and the marketing of the products, enabling greater

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15. Market potential is based on market demand for the product and degree of competition faced.

efficiency in both these areas. The products on which to focus were determined by examining the products' potential marketability in terms of their market strength, profitability, and similiarity of marketing effort required to sell the products and profitability. It is recommended that the proposed wood product plant should concentrate on the manufacture of several complimentary products, moulding and wall panelling. In this manner the plant can evolve and grow with minimal disruption and risk. Once the company becomes established, it could branch out and produce a larger variety of products to satisfy additional needs of customers. It can expand its market area or it could attempt to sell to other users or market targets, if feasible.

Table 4.12 presents the specifications of mouldings and wall panelling and recommended price range for aspen products which should be produced initially. It is recommended that prior to start up of the operation, manufacturers discuss marketability of specific products with the distributor, to ensure that a good product mix is manufactured.

6.2 Production Characteristics

This section will identify and specify production characteristics required to manufacture aspen moulding and wall panelling. Costing of materials and equipment will be detailed in Section 9 when initial volumes of production by type of product is presented. Production characteristics which will be specified include raw materials, treatment, handling, storage, shipment and equipment.

Raw Material

The major starting component in the manufacture of mouldings and wall panelling is wood. The type of aspen required for these applications is "selected". Since aspen is not graded in Alberta it is difficult to specify the grades required. However, there are grading rules for poplar lumber established by the U.S. National Hardwood Lumber

Association. The specifications from the grading rules issued by the above association is included in Appendix C. The rules, which are accepted universally, specify that FAS (first and seconds) is the best grade. It specifies that pieces be no less than 6 inches wide by 8 feet long and yield 83 1/3 percent clear cuttings. The next lower grade is SELECTS which are pieces 4 inches wide by 6 feet long. A still lower grade is No. 1 Common Lumber, this group is expected to yield 66 2/3 percent clear cuttings. Finally, there are also grades 2, 3 and Economy. The aspen required for the wood product plant would probably be from Grade 2 upwards. It is recommended that the plant produce a high quality product, therefore it is not advisable to use lower grades. Moulding would require clear lumber with limited stain for a raw material. Wall panelling could utilize clear, stained and knotty lumber. Table 6.2 shows the lumber grade recovery from selected aspen logs conducted by the U.S. Forest Products Research Center. A review of studies related to the quality of Alberta's aspen indicate that the quality of aspen in the Wildwood area would probably be somewhat higher than values presented in the Table 6.2.

Table 6.2

Lumber Grade Recovery on Test Cuts of Selected Aspen Logs[16]

Grade	Volume	Percentage	Primary End Use
FAS	176	1	Moulding
Select	862	5	Moulding
No. 1 Com.	3,413	19	Moulding/Wall Panelling
No. 2 Com.	10,096	57	Wall Panelling
No. 3 Com.	2,256	13	—
Below Grade	813	5	—
TOTAL	17,616	100	

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[16] G.R. Bailey, "Lumber Grade Recovery from Straight Aspen Logs", Forest Products Journal, Vol. 23, No. 4, April 1973.

Based on findings on the aspen supply assessment one could assume that over half of the poplar lumber in the Wildwood area could be considered "Select" and channelled in the production of products. Generally, it would be most efficient to purchase the lumber in 1" thick by 6" wide or less by 8 foot long pieces that have been rough planed.

Treatment

Various types of products should be protected from attack by fungi, insects and borers when necessary. Application of special chemicals or wood preservatives will accomplish this.

The degree of protection depends on the effectiveness of the chemical and how thoroughly it penetrates the wood. There are two broad categories of wood preservatives; oils and salts. When selecting a preservative one must consider its effectiveness in protecting the product, any side effects that may result, and where the product will be used (such as Japan, California etc.) A number of commercial preservatives are available for on the job applications to specifically meet the manufacturer's needs.

Another type of wood treatment called stabilization that may be considered, stabilizes wood or reduces its tendency to expand and contract with moisture changes. Several methods have been developed for stabilized wood by bulking. They involve the use of glyoxyls, polymers, alkyds, acrylics, furfurly alcohol, polyethylene, glycol, phenolic resins and other chemicals. Stabilization is achieved by various methods. However, the cost of stabilizating wood usually inhibits the use of most bulking processes. Some industries have also found that proper drying of the wood removes the need to stabilize wood.

Another type of treatment or process that must be undertaken is drying the wood. This involves reducing the moisture content of lumber from about 30% (green) to 6-10%, the required level specified for its grade and use. Lumber is usually placed in kiln-dryers where the temperature and humidity is controlled. Poplar lumber has a much longer drying cycle than softwoods because it has a higher moisture content and it has low resistence to moisture change. This makes fast drying increase the percentage of lumber defects. A dehumidification process is probably best suited for drying poplar.

Handling and Storage

Poplar requires no extraordinary handling and storage requirements. All lumber and finished products should be protected from moisture. The raw material should be stacked in piles laid on level skids raised at least 6 inches above the ground. They should be well supported, spaced and lying straight. If outdoors, the material should be covered with canvas, waterproof paper or polyethylene film. The covering should not be put on to tight, as this encourages mould growth. Lumber stored indoors only requires to be stacked.

Shipment

Mouldings are generally shipped in crates and bundles, depending on distributor requirements. Wall panelling is either shipped in shrink wrapped packages, or in bundles that are stickered and with the ends cardboard capped for protection. The major considerations when shipping the finished products is to protect them from moisture and damage during handling and shipment. If the wood is shipped to a hot and humid climate, the use of an antifungicide may be necessary.

Equipment

The following is a list of equipment that may be required for the establishment of a moulding and wall panelling plant:

- resaw or ripsaw
- profile head moulder and accessories

- shrink wrapper
- dry kiln
- travelling saw
- flat sander
- cross saw
- 3 Phase Power
- fork lift
- fixer belt sander

Requirements for a fingerjointing operation include:
- fingerjointer
- oven
- glue applicator
- crowder line
- curing line
- conveyor system
- dry kiln

Both types of operations would have to examine the alternatives for using or disposing of wood residuals.

6.3 Quantities Expected to Sell

It is difficult to project quantities of products which can be sold. Since the company's revenue is dependent on the quality of its products, the number and type produced, the effectiveness of its marketing efforts and the management of the business, it can only be estimated on the basis of what is reasonable. The following briefly describes the findings of the market assessment as it relates to consumption and production of mouldings and related products in Alberta.

- It is estimated that 40% of single family dwellings, semi-detached, row houses and apartments use wood mouldings, trim and baseboard. Single family dwellings, semi-detached and row houses consume approximately 260 meters of moulding. Apartments consume approximately 160 meters per unit.

- Estimated residential construction consumption of these products made from wood in dwelling starts in Alberta was $4,100,000 in 1984.
- Renovation and repair (R & R) work is estimated to account for approximately one half of all residential building construction activity. Most work involving interior painting/plastering/ drywall, new family recreation room, bedroom and living quarters is undertaken by the DIYer. Therefore, estimated total residential construction consumption (dwelling starts and R & R) of these products would have exceeded $8,000,000 in 1984.
- A large quantity of moulding is also utilized in other types of construction (industrial and commercial).
- There are very few large producers of these products in Alberta. Their combined value of production is estimated to be approximately $8,000,000. Most of these manufacturers utilize imported hardwood as a raw material.

Based on the above information two scenarios related to the volume of potential poplar sales have been developed. Both assume that poplar will be accepted by the end user and that it will be reasonably priced. Several asssumptions made relating to market conditions are as follows:

1) Estimated quantities of retail sales of unfinished wood mouldings for residential building construction activity in Alberta totalled 36,600,000 lineal feet in the last year.
2) Estimated quantities of retail sales of solid wood wall panelling for residential building construction activity in Alberta totalled approximately 8,600,000 Fbm in the last year.
3) Poplar will be marketed as a differentiated product.
4) It is likely that as poplar moulding's market share increases, fir/hemlock's share and to a lesser degree fingerjointed mouldings will decrease somewhat. In total, poplar mouldings may be able to secure appoximately 10% of the market share. Poplar wall panelling may be able to secure 10% of the market share over the long run. It will obtain its share mainly from pine and to a lesser degree cedar wall panelling.

5) Based on the above estimates and market assessment findings two scenarios related to potential market shares a poplar manufacturer may be able to secure over the short run were developed and presented in Table 6.3.

Table 6.3

Estimated Volume of Poplar Products That Could be Sold Annually in Alberta

	Scenario 1	Target Market Share	Scenario 2	Target Market Share
1987				
Moulding	732,000 lin.ft.	2	732,000 lin.ft.	2
Wall Panelling	172,000 Fbm	2	172,000 Fbm	2
1988				
Moulding	1,464,000 lin. ft.	4	1,464,000 lin.ft.	4
Wall Panelling	344,000 Fbm	4	344,000 Fbm	4
1989				
Moulding	1,830,000 lin.ft.	5	2,196,000 lin.ft.	6
Wall Panelling	430,000 Fbm	5	516,000 Fbm	6

7.0 MARKETING

From the market assessment and analysis of other manufacturers, it is possible to identify products that could be viably produced. They are mouldings, solid wood wall panelling, shelvings and lath. Of the products listed above, the proposed plan should focus their initial efforts on the production of solid wood wall panelling, and mouldings, (baseboard, door casings, stops and jams, and trim). This will help both the production and marketing of the products, enabling greater efficiency in both these areas. The products on which to focus were determined by using the following criteria:

- market strength
- similarity of marketing effort required to sell the products
- profitability
- ease of production

The operation of the plant will go through several stages of development until it matures. Initially, the plant should focus on a limited variety of products. Once production and marketing effort matures, profitability increases, and the company's reputation grows, the operation can expand its market area, attempt to sell to other market targets, or expand its product lines. Expansion into new product lines can follow two paths:

- The company may receive requests for other types of related products from the distributor; and/or,
- A company may decide to expand into a new line. For example, the plant may be interested in producing furniture blanks, lath, etc.

Products which should be manufactured initially are those for which there is a strong market, and which can also be made with relative ease. In this manner the proposed plant can evolve and grow with minimal disruption and risk to the fledging operation. It can also maximize the potential for viability in the short and long term.

Three manufacturing phases are identified in Table 7.1 showing the order in which products should be introduced onto the market. The phases are not presented with time lines, as timing is dependent on the success of the business, and the length of time it takes to improve productivity levels and to develop woodworking skills. Product introduction timing may also change if products have to be modified, or product lines altered, to effectively compete in the market. Expansion of product lines may also change if large custom orders are placed, or good identifiable markets are found.

Table 7.1

Recommended Products to be
Manufactured by the Proposed Wood Products Plant

Phase I	Phase II	Phase III
Wall Panelling	Wall Panelling	Wall Panelling
Moulding	Moulding	Moulding
	Dowelling	Dowelling
	Dressed Lumber	Dressed Lumber
		Fingerjointed Materials

* Phases are not specific periods of time.

Table 7.1 shows products which should be produced initially, and those that could be introduced at a later date when the timing is deemed appropriate. These products are selected for several reasons. Firstly, wall panelling and moulding are manufactured with the same type of equipment. They also use a "selected" type of wood. The high "clear" grades of aspen would be produced into mouldings, while the lumber with knots and stain would tend to be utilized in the production of wall panelling. Secondly, these products appear to have the greatest market potential at this time.

A marketing strategy for the operation is described below. It examines the four main aspects of marketing; location, product, price and marketing. It recommends the market techniques that would be most effective in obtaining orders and developing a successful business.

7.1 Location

A manufacturer must locate its plant where the operation will be most efficient. The location of a manufacturer is frequently determined by a number of factors which include source or raw materials, labour availability, transportation costs (in and out) and routes, fuel, power, water, climate and overall operating costs. Other factors such as proximity of markets, existing plants, and inducements from municipal, provincial or federal government agencies must also be considered.

The proposed plant is to be located in Wildwood, which is approximately 80 miles west of Edmonton on Highway 16. It is located within 25 miles of its main source of raw material, aspen, which is in relative abundance throughout the region. It is also in close proximity to major markets, and would therefore incur relatively low transportation costs. The proposed plant will draw on labour in the Wildwood vicinity. It will also enter into an agreement with Snow Goose Industries to lease its facility and equipment, which will result in lower overall operating costs. All in all, the location of the plant will prove to be very efficient and cost effective.

7.2 Product

The products which the proposed plant should manufacture initially are: solid wood wall panelling and moulding (door casing, stops, jambs, trim and baseboard). A detailed list of products is presented in Table 4.8. All of these products will be made of aspen. The higher grades of "clear" wood will be utilized to produce mouldings. The stained and knotty wood will be used in the production of wall panelling. Other products such as dowelling, shelving and fingerjointed products can be introduced at a later date when the timing is deemed appropriate.

Although the proposed residential housing building products are sold throughout the year, the highest volumes of sales are made during the fall and winter months. The plant will have to produce and stockpile items during the spring/summer season. Distributors will also stockpile quantities of products.

During the initial product manufacturing phase, the plant will acquire machinery, develop the skills to manufacture these products and establish a clientele. The market analysis indicated that there is a good market for these products, especially if the product meets acceptable standards of quality and are reasonable priced.

The quality of packaging is of no major importance. Some wood panelling will have to be shrinkwrapped. Mouldings and some panelling will only need to be bundled together. What matters most is that the products are packaged such that they can withstand rough handling during shipping and are received in good condition.

It is difficult to project the quantitites of product which may be sold. Sales depend on a number of considerations, including: the quality of products manufactured; the number and type of products; the effectiveness of marketing efforts; the management of the business; and the strength of the competition in all these areas.

The following briefly describes the basis on which initial volumes of production were determined:

- It is likely that in the future, poplar mouldings and wall panelling may be able to secure approximately a 10% share in Alberta's moulding and wall panelling market, an 8% share in Saskatchewan's market and 6% in B.C.'s market.
- Aspen will be actively marketed as a differentiated product.
- Aspen will be test marketed during the plant's first year of operation.
- Based on market findings, the annual consumption of mouldings and wall panelling in Alberta, B.C. and Saskatchewan is estimated to be as follows:

	Mouldings	Wall Panelling
B.C.	73,837,232 lin.ft.	17,349,243 Fbm
Alberta	36,600,000 lin.ft.	8,600,000 Fbm
Saskatchewan	31,333,444 lin.ft.	7,362,296 Fbm
TOTAL	141,770,676 lin.ft.	33,111,539 Fbm

Two scenarios related to the volume of potential sales are developed in Table 7.2 based on the information above. Both assume that poplar will be accepted by the end user and that it will be reasonable priced.

Table 7.2

Estimated Volume of Products Sold in Western Canada

	Scenario 1			Scenario 2		
Province	Moulding lin. ft.	Wall Panelling Fbm	Target Market Share	Moulding lin. ft.	Wall Panelling Fbm	Target Market Share
Year 1						
B.C.	—	—	—	—	—	—
Alta.	732,000	172,000	2	732,000	172,000	2
Sask.	—	—	—	—	—	—
Year 2						
B.C.	738,373	173,493	1	1,476,745	346,985	2
Alta.	1,464,000	344,000	4	1,464,000	344,000	4
Sask.	313,335	73,623	1	626,669	147,246	2
Year 3						
B.C.	1,476,745	346,985	2	2,953,490	693,970	4
Alta.	1,830,000	430,000	5	2,196,000	516,000	6
Sask.	626,669	147,246	2	1,253,338	294,492	4
Year 4						
B.C.	2,215,118	520,478	3	3,691,863	867,463	5
Alta.	2,196,000	516,000	6	2,928,000	680,000	8
Sask.	940,004	220,869	3	1,880,007	441,738	6
Year 5						
B.C.	2,215,118	520,478	3	4,342,236	1,040,955	6
Alta.	2,562,000	602,000	7	3,660,000	860,000	10
Sask.	1,253,338	294,492	4	2,506,676	588,984	8

7.3 Pricing

Pricing of a product is dependent on such factors as, the quality of the product, costs of producing and marketing, and the overall market factors affecting demand and supply, which are discussed in Section 4.4. Selling prices are based on the cost of production plus mark-up. Findings of interviews with distributors and retailers show that manufacturers generally sell wood products at approximately 30 to 40% of the retail sale price. The cost of using a distributor generally is about 20% of the total retail sale price.

Because of lower labour productivity at the onset of production, and the effect of this on the labour cost component, feedback from the initial market testing for the product and feedback from the distributor should be used to provide price guidelines rather than using the cost of production. These prices should be reviewed after the plant has been in production for six months, for at this time labour productivity should be good, and material wastage should be minimal. Prices for individual products should be reviewed on a regular basis thereafter, to ensure that each product being manufactured is profitable. The rough estimate of possible price ranges for poplar wood mouldings, wall panelling and finished lumber is presented in Table 4.10, and is based on market findings.

7.4 Marketing

Physical distribution, or getting products to customers, is crucial to a manufacturer. The most efficient way to get the proposed products to target markets is to distribute products indirectly to the end users by using a distributor. The distributor may assist by physically distributing the products as well as by offering different levels of service, depending on the cost. For example, some may assist with packaging and delivery, and may assume responsibility for the entire marketing effort.

Others will accept only specific responsibilities. Some will also share advertising and promotion costs while others will not.

The manufacturer should closely examine distributors' distribution systems, market coverage, range of services, promotional programs and costs prior to selecting a distributor. Even though the distributor may promote products, the plant may still be responsible for some promotion and advertising. Advertising and promotion are extremely important in informing the potential buyer how and where to buy the product. All advertising should mention the specific stores where the product can be bought. Making product distribution a part of the total marketing effort may help reduce the overall costs. Working together, distribution, advertising, promotion, packaging and personal selling will help reduce the overall costs and reach target markets more efficiently. It may be worthwhile to consider the temporary hiring of a person who could establish a marketing program, assist in the selection of distribution, and actively promote products during start-up of the plant.

Initial market testing should be carried out for each product. This can be done using one of two approaches. The first approach involves the "selected" distributor and a company representative, such as the manager, visiting likely buyers (retailers, window manufacturers, contractors). They would carry product samples, and could determine the extent of the potential buyer's interest in the product, the suggested price range for the product, and could entertain suggestions on improvements to the product and its packaging.

Another, perhaps more effective approach, involves the selection of a specific area considered reasonably typical of the total market, and the introduction of the product in this area, complete with a total marketing campaign. The selected area could be a city (such as Edmonton, a region, or a television coverage area). If carefully designed and controlled, such a test will allow management to develop estimates of sales on a larger full-scale introduction. Three problems that may be present with this approach are as follows:

1) Competitors may disrupt the results of market tests by reducing the prices of their products in the test area or through increased promotional outlays.
2) Market testing a new product informs competitors of company plans prior to the product's introduction.
3) Limited quantities of proposed products would have to be produced. Therefore, the plant may have to acquire or lease equipment to undertake initial market testing.

Once the market testing has been completed, the company should market their products in a variety of ways to maximize their sales. The primary market targets are the DIYer and building contractor (to a lesser degree). Both end users generally buy these products from retail outlets. However, each of these potential buyers is unique in terms of its characteristics and buying patterns. Therefore, promotion techniques best suited to each potential user must be applied.

The important marketing considerations are a competitive price and good product quality. It is recommended that quality control procedures be implemented for all products. An on-going process of product evaluation by distributors, retailers and users should be implemented. This will identify product modifications and quality considerations. The company should guarantee its products and provide satisfactory resolution of any complaints. In addition, large custom orders should be solicited from other manufacturers (such as window manufacturers), if acceptable to the distributor. Delivery procedures, in particular turnaround times, are important in obtaining customer satisfaction. The proposed plant should strive for a one-to-two week turnaround time in filling orders. Therefore, stockpiling of products will be required.

Initially, the plant should focus its promotional strategy on attempting to reach the DIYer. Collectively, this group will purchase the largest quantities of these products. They will make the majority of their purchases at retail outlets, or more specifically, at home improvement centers. Once a promotion strategy is established to stimulate sales to this target group, attention can be directed to promote the product to other prosepctive buyers.

A good promotional strategy will include a variety of promotional activities. They include advertising, direct mail sales promotion, personal selling and publicity. Selecting the relative importance of these activities will depend on the nature of the product, available budget and nature of the customer. Effective marketing techniques for various user groups are summarized in Table 7.3. The determination of promotional activities which best serve the business, can be derived by taking the following into consideration:

1) Selecting techniques which will reach the target markets most effectively and at the least cost.
2) Determining how much of the marketing budget can be assigned to each technique, and if it is enough to achieve results.
3) Identifying special features of the company that will influence the effectiveness of the activities. Determining whether specialized or mass audience channels should be used and whether promotions should be concentrated at certain times of the day, month or year.
4) Determining what should be said to set the company apart from the competition.

Table 7.3

Recommended Marketing Techniques for User Groups

Technique	Do-It-Your Selfer	Contractor	Retailer	Other Manufacturers
Direct Mail				
. mail, letters, brochures, coupons, samples with follow-up		x	x	x
Advertising				
. newspaper, newsletters	x	x	x	
. magazines	x	x	x	
. trade journals	x	x	x	x
. radio	x			
. T.V.	x			
. billboards	x			
. transit posters	x			
. labelling and/or stamping of products	x		x	
. yellow page advertising	x	x		x
. distributor catalogues		x	x	x
Sales Promotion Price Lists				
. contests	x			
. coupons	x			
. free samples	x			
. demonstrations	x			
. displays at trade shows and exhibitions	x	x	x	x
Publicity				
. sponsorship of sports teams	x			
. service club membership		x		x
. contributions to special community events	x			
. charities public service				
Personnel Selling				
. direct one-to-one selling with distributor			x	x

A key element that must be taken into consideration when selecting marketing techniques is the "business image" that a company wants to project about itself and its product. A manufacturer of aspen moulding and wall panelling should focus on the following:

- Aspen is a differentiated product and aspen mouldings and related products are new, innovative alternatives to pine, cedar, and fir products;
- the products are made locally out of our local forest resources;
- customers are getting a higher quality wood at a lower price because they do not have to pay for the costs of transporting the products over long distances. Most wood mouldings and related products are currently imported from B.C., northwestern U.S.A., eastern Canada, and the U.S.A.

Because the mass introduction of aspen mouldings and wall panelling will be new to Western Canada, it is very important that the company initially put a great deal of emphasis on promoting the product and its attributes. It will be essential that the manufacturer and distributor jointly develop marketing plans which will result in the effective promotion of each product.

8.0 PRODUCTION REQUIREMENTS

The production requirements are made up of four factors:

- capital requirements
- production materials
- labour
- production patterns or designs

Capital requirements include the building required to house the manufacturing operation and the equipment needs, while production material requirements are those materials required to produce the products. Labour refers to the production and management workers. Production patterns or designs are the patterns required to construct the products.

The specific components associated with each of these production requirements are described below.

8.1 Production Needs

8.1.1 Capital Requirements

The proposed plant may sublease space from buildings currently occupied by Snow Goose Industries, that is, if adequate space is available for use by the plant. The space being considered is currently being leased by Snow Goose for 5 years, renewable each year at the Industrie's option, with a further option to purchase. It currently occupies a production shop and administrative office on a 4.7 acre parcel of land adjacent to the western boundary of the Village of Wildwood.

The property is serviced with telephone, electricity, natural gas, water and sewer. It is fenced on four sides, with a gate entrance to a service road approach from Highway 16. It has adequate parking facilities and space for outside storage.

The production shop is a 50' x 100' high, steel-fabricated, fully insulated building, with four large overhead doors on three sides, adequate for loaded trucks. It has a concrete floor with drains and is heated and well lit. The shop has been improved to include a paint and finishing room, shop office and washroom. The production shop would have to be modified to accommodate the proposed plant. Painting activities may have to be moved out of the plant for two reasons. One, it may be hazardous to have a painting room (which uses flammable liquids) in close proximity to a woodworking operation. It may not meet Alberta Building Code standards because of fire protection regulations. Secondly, any airborne dust particles could become mixed with paint or settle on a freshly painted surface which would produce undersirable results. A building would also have to be constructed to house finished products.

The administrative office is located in a 560 square foot house which is situated about 200 feet from the shop. The building has been modified to include two offices, a kitchen and a washroom.

All buildings, equipment, improvements and fixtures are fully insured. Coverage includes public liability and property damage.

It is difficult to specify precise facility size requirements at this time. A plant layout can not be developed until detailed equipment specifications are known, and sequence of operation established, and operation descriptions developed. Therefore, the following will basically review components which the building requires to efficiently operate. Precise building requirements can be estimated at a later date, when the proposed plant initiates plans to go into production and determines the type of equipment they will purchase.

A review of other manufacturer's facilities indicate that a building should include several components as listed in Table 8.1. The facility should be spacious, with an area of approximately 3,000 to 10,000 sq. ft., depending on which activities are carried out in the building and the volumes of production. It should have a fairly high ceiling clearance ranging between 15 and 25 feet high. The building should be adequate for present use and possible future expansion.

Table 8.1

Space Requirement for Proposed Plant

Space	Space Required Sq. Ft.
Work Area	3,000 - 5,000
Dry Kiln	2,400
Office and Administration	220
Storage of Raw Material	Outdoor storage
Storage of Finished Products	2,500
Mechanical Room	100
TOTAL SPACE REQUIRED	8,200 - 10,220

If a building must be acquired or leased, a metal Quonset-type structure may be the quickest to erect and the most reasonable priced option. The building floor should be concrete.

If Snow Goose's production shop is utilized, it will function as a work area. The drying of lumber, the storage of raw material and finished product activities will be carried out in close proximity to the shop. The work area will require adequate lighting, heating, plumbing, ventilation, dust collection system, sprinkler system and insulation and so on. Additional requirements of the building would include:

- fire rated doors and hinges;

- exhaust fans, fire extinguishers;
- water and waste system; and,
- 3 phase power.

The major raw material, aspen, will be stored outdoors. It should be protected from moisture. Aspen should be stacked in piles laid on level skids raised at least 6 inches above the ground. It should be covered with canvas, waterproof paper, polyethylene film or housed in a shed. Other raw materials, such as plastic for shrinkwrapping will be stored in the production shop.

The finished products will be stored in a building in close proximity to the production area. The building should include a large door for loading and unloading. The only other requirement is that the finished product should be protected from moisture.

The office and administration functions could be undertaken in the administrative office. The basic requirements would be met if the office was leased. The basic requirements include:
- 5/6" drywall;
- heating;
- lighting;
- plumbing; and,
- insulation.

A dry kiln which would use the dehumidification drying process, and would dry approximately 1 million B.M. per year, would require a building approximately 50 feet long by 30 feet wide and 18 feet high, with an attached unit room, 50 feet by 16 feet. To double the capacity to 2 million B.M. per year, it would be necessary to add a building of 50 feet by 30 feet on the other side of the unit room. The same unit room could be used for the second unit. Additional requirements include:

- foundation;
- drains;
- plumbing;
- deflectors and fan;
- electrical entries;
- main disconnects;
- lighting;
- mechanical room ventilation;
- duct works; and,
- tracts.

The dry kiln should be located in close proximity to the production shop.

Equipment

The equipment required in a moulding and related products plant is listed in Table 8.2. It includes equipment for product manufacturing, and office and support functions. All of the equipment will have to be purchased or leased. It is important to note that this list should be considered as only a basic initial inventory of items to be included in the plant. Other items may be subsequently required or desired by the manager. As production increases, more equipment will be required as indicated in Table 8.3.

Table 8.2

Initial Equipment Requirements for Proposed Plant

Major Production Equipment

- Planer Moulder
  - 6" or 9" moulding machine
  - pneumatic hold down
  - extra horse power on profile
  - dust connections
  - 1 set of cutterheads
- Profile Grinder
- 10 extra cutterheads with knives
- Profile knives - corrugated back - 60 mm wide
- 2 cut-off saws, stops and roller tables
- Wide-Belt Sander
  - 24" or 36" working width
- Band Resaw
  - 28" or 36" wheel diameter
  - radial arm feed gear
  - horizontal idle rollers
- Rip Saw
  - power feed, variable speed
- Shrinkwrapper and shrink tunnel
- Fork lift
- Dry kiln
- Dust collection system
- Conveyor system or carts

Additional Production Requirements

- 3 phase power
- Miscellaneous tools and cutting tools
- Clock and time clock

Table 8.2

Initial Equipment Requirements for Proposed Plant

(continued)

Office Requirements

- 2 desks
- 2 chairs
- 2 visitor chairs
- 1 typewriter and stand
- 2 calculators
- 1 storage cabinet
- 2 legal size filing cabinets
- miscellaneous equipment (staplers, etc.)
- office supplies

Miscellaneous Requirements

- tables and chairs for staff room
- pile for shavings waste, incinerators, or storage bin

OPTION:

Requirements for Fingerjoint Operation

- fingerjointer
- oven
- glue applicator
- crowder line
- curing line
- conveyor system

Table 8.3

Future Equipment Requirements for Proposed Plant Based on Estimated Production Volumes

Year 1	Year 2	Year 3	Year 4	Year 5
SCENARIO 1				
1 moulder	1 moulder	2 moulders	3 moulders*	3 moulders*
profile grinder	profile grinder	profile grinder	profile grinder	profile grinder
extra cutterheads	extra cutterheads	extra cutterheads	extra cutterheads	extra cutterheads
profile knives	profile knives	profile knives	profile knives	profile knives
2 cut-off saws	4 cut-off saws	6 cut-off saws	8 cut-off saws	10-12 cut-off saws
1 wide-belt sander	1 wide-belt sander	1 wide-belt sander	1 wide-belt sander	1 wide-belt sander
1 resaw	1 resaw	1 resaw	2 resaws*	3 resaws*
1 ripsaw	1 ripsaw	1 ripsaw	2 ripsaws*	3 ripsaws*
1 shrinkwrapper/ tunnel	1 shrinkwrapper/ tunnel	1 shrinkwrapper/ tunnel	1 shrinkwrapper/ tunnel	1 shrinkwrapper/ tunnel
1 dry kiln	increase capacity	increase capacity	increase capacity	increase capacity
1 fork lift	1 fork lift	2 fork lifts	2 fork lifts	2 fork lifts
		Equipment for Fingerjoint Operation		
SCENARIO 2				
1 moulder	1 moulder	3 moulders*	5 moulders*	6 moulders*
1 profile grinder	1 profile grinder	1 profile grinder	2 profile grinders	2 profile grinders
extra cutterheads	extra cutterheads	extra cutterheads	extra cutterheads	extra cutterheads
profile knives	profile knives	profile knives	profile knives	profile knives
2 cut-off saws	6 cut-off saws	10-12 cut-off saws	16 cut-off saws	22 cut-off saws
1 wide-belt sander	1 wide-belt sander	1 wide-belt sander	1 wide-belt sander	1 wide-belt sander
1 resaw	1 resaw	3 resaws*	4 resaws*	4 resaws*
1 ripsaw	1 ripsaw	3 ripsaws*	4 ripsaws*	4 ripsaws*
1 shrinkwrapper/ tunnel	1 shrinkwrapper/ tunnel	1 shrinkwrapper/ tunnel	1 shrinkwrapper/ tunnel	1 shrinkwrapper/ tunnel
1 dry kiln	increase capacity	increase capacity	increase capacity	increase capacity
1 fork lift	1 fork lift	2 fork lifts	3 fork lifts	4 fork lifts
		Equipment for Fingerjoint Operation		

* may be substituted for a lower number of high speed machines.

The equipment requirements were determined through interviews with industrial machinery salesmen and manufacturers of moulding. There are no moulders, sanders or saws that are produced domestically. Most are imported from U.S.A., Europe and Southeast Asia. It was felt by several of those interviewed, that heavier, precise equipment is more durable than lighter weight equipment. Some manufacturers suggested that second hand or reconditioned equipment could be purchased. Several publications, such as "The Surplus Record", list surplus capital equipment that is available throughout North America.17 The proposed plant may also locate surplus equipment using established criteria. Management should consider durability, ease of maintenance, ease of obtaining replacement parts, equipment precision, capacity warranties and freight charges. There are several sources that sell new machinery. A list of manufacturers is provided in Appendix D. Prices vary between manufacturers somewhat, however, manufacturers are competitive and may be willing to negotiate. Second hand, or reconditioned equipment, will tend to be priced much lower than new equipment. It should be considered as an economically viable alternative.

The dry kiln can be acquired from a number of sources. However, all dry kilns must be imported. Most of the other production equipment, such as the shrinkwrapper with shrink tunnel and forklift, can be purchased from dealers, and can be new or used depending on their relative prices.

8.1.2 Production Materials

The major starting component in the manufacture of mouldings and wall panelling is wood. The type of aspen required for these applications is "selected". The specific wood requirements is detailed in Section 6.

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17. The Surplus Record, Index of Available Capital Equipment, Chicago, Illinois, published monthly.

Other production materials required are those needed to package and ship finished products. This would include polyethylene for shrinkwrapping, cardboard for labels and bundling, and stickers and nails for making crates. Several types of polyethylene are available for use in shrinkwrapping. The type used is often dictated by the required durability of package and by the consumer of the product. Some types of polyethylene display better than other types. All of these materials can be purchased from a variety of sources, mainly distributors.

8.1.3 Labour

The recommended number of staff required to operate the plant initially, was determined from the market analysis. Information obtained during the market assessment, interviews with other manufacturers, and estimated potential sales volume of the plant were also considered.

It is recommended that the proposed plant contract the services of Snow Goose's plant manager and secretary/bookkeeper. The manager will be responsible for buying equipment and setting up the plant. In the early phases of the business, he will be involved in the selection of a distributor and development of a marketing plan, which would include an aggressive promotional strategy. The strategy should include an intensive consumer education program, advertising, and provision of research information to consumers which stresses aspen's favorable wood properties. The manager will be responsible for the operation of all phases of the business. His primary objective should be to operate the plant at a profit independent of any outside financial assistance. The manager will possess the following characteristics:

- experience in manufacturing wood products;
- experience in running a successful business;
- good management skills;

- ability to get along with people;
- ability to motivate people;
- experience at selling of products; and,
- capable of day-to-day management and decision making.

In addition to using the services of Snow Goose's manager and secretary/bookkeeper, it is recommended that they initially hire 6 persons for the following positions:

- 1 foreman
- 1 kiln operator
- 1 kiln operator helper
- 2 chop saw operators
- planesmen and grinder
- 1 rip, resaw and sander operator

The kiln operator and helper would also be responsible for wrapping, bundling and transporting the finished products to the storage area. Operators would assist each other when feasible. The shop would operate as a team. As production increases the plant will be required to increase staff and employ people to operate additional equipment. These additional workers, eg. a full-time grinder/shaper, will be phased in as product demand warrants.

The foreman should be hired at an early point in the business' inception. He will assist the manager with purchasing equipment and setting up the plant. It is essential that the foreman be experienced in supervising a moulding or related products operation. He should be experienced in operating and maintaining woodworking equipment and have the ability to sharpen cutterheads and produce profile heads.

The production workers will be drawn from unskilled, skilled and highly skilled labour in the Wildwood area. The production workers will be responsible to the shop foreman. Their required qualifications will be as follows: preferably some woodworking experience, ability to be trained and willingness to learn. It is also important that they be ambitious, versatile, safety conscious, able to work with others and able to read and follow instructions.

Most production workers hired will be inexperienced. After several months of on-the-job training, they will achieve higher levels of expertise and production. Those persons with more related experience will operate the more complex equipment. The productivity of staff will not likely be high for the first few months. However, once staff become trained, a good quality product should be produced and productivity levels should be high.

The management for the proposed plant should be provided by a well experienced manager, who is responsible to a Board of Directors. The Board of Directors will provide policy direction and management overview.

It would be extremely effective if the proposed plant temporarily contract the services of a marketing consultant during the initial plant establishment phase, to work closely with management in the selection of a distributor, initial market testing, and development of a marketing program which includes an aggressive promotional strategy. Once market testing is completed and a marketing program is well in place, marketing would then become the sole responsiblity of the manager.

8.1.4 Product Design and Patterns

Product design and patterns will be developed by the manager and foreman initially, and will be selected from recommendations of the distributor.

Innovative designs and products can be incorporated into the production process of the proposed plant in the course of its operation. A few suggestions on how innovative ideas can be acquired include:

- Obtain specific and detailed feedback from distributors and consumers of the company product on the pros and cons of the product, suggested modifications, new products desired.
- Involvement with relevant organizations conferences, trade fairs. Brainstorming sessions and discussions with the members and making known that product suggestions are welcome, can provide the company with a variety of suggestions.
- Keep current with what is occurring in the moulding and related products manufacturing industry, and home improvement trends, by attending trade shows and visiting retail outlets.

9.0 FINANCIAL FEASIBILITY

Production and operating requirements were presented in Section 8.0. This section will present and summarize all of the financial information required to establish and operate the business and present cash flow projections for the proposed business.

9.1 Capital Considerations

9.1.1 Capital Costs

Table 9.1 presents an outline of the capital costs involved in the establishment of a mouldings and related products plant. The table presents two options. The first option includes all costs associated with starting up a moulding related plant. The second option assumes Snow Goose Industries plant and equipment will be used where possible. These estimates are based on figures obtained from contractors, industrial machinery sales representatives and suppliers, based on 1986 prices.

The proposed plant will require approximately $575,542 to start-up production, if new equipment is purchased for use in the plant. If used or reconditioned equipment were used, start-up costs could total approximately $480,347. It is recommended that the plant phase-in production, and purchase equipment as needed. It would be best if the company leases available equipment from Snow Goose. As shown in Option 2, capital costs would total approximatley $266,537. If used or reconditioned equipment were utilized, costs could total approximately $227,327. For the purposes of the feasibility study, it will be assumed that 50% of start-up funds will be obtained from private sources and the other 50% will be borrowed from financial institutions. The funds to be borrowed will be amortized over 10 years at an interest rate of 12%. The funds received from private sources will not influence cash flow projections since no on-going payments will be required.

Over the first 5 years of operation, the proposed plant would require approximately $300,000 to purchase additional equipment and enlarge the existing dry kiln capacity. Future funding for equipment purchases will be borrowed from financial institutions at a rate of 12% amortized over 10 years.

Table 9.1

Capital Requirements to Establish the Proposed Plant

	Option #1	Option #2
BUILDING	$125,000	$ 17,500
FURNISHINGS		
Lunchroom		
. 2 tables	360	
. 8 chairs	272	
Office		
. 2 desks	734	
. 2 chairs	205	
. 2 visitor chairs	72	
. typewriter	800	
. 2 calculators	240	
. clock and time clock	460	
. 1 storage cabinet (2 door)	315	
. 2 legal size filing cabinets (2-4 drawer)	354	
. garbage cans	16	
TOTAL	$ 3,828	
EQUIPMENT		
. 9" plane moulder	49,000	
. profile grinder	12,300	12,300
. 10 cutterheads with knives	7,500	7,500
. profile knives ($8.50/inch)	850	850
. 2 cut-off saws	11,200	11,200
. 24" wide belt sander	28,500	28,500
. 28" band resaw	13,500	
. rip saw	22,000	22,000
. shrinkwrapper	36,620	36,620
. fork lift	7,000	
. dry kiln	100,000	
. shavings/waste/dust removal system	20,000	
. miscellaneous tools	1,000	
TOTAL	$309,470	$118,970

Table 9.1

Capital Requirements to Establish the Proposed Plant

(Continued)

		Option #1	Option #2
INVENTORY			
. Production Materials			
- aspen		$ 23,144	$ 23,144
- office supplies		1,000	500
- shrinkwrap and packaging materials		2,000	2,000
	TOTAL	$ 26,144	$ 25,644
OPERATING CAPITAL		80,238	80,328
CONTINGENCIES		52,322	24,235
TOTAL COSTS			
SUMMARY OF COSTS			
. Building		125,000	17,500
. Furnishings		3,828	—
. Equipment		309,470	118,970
. Inventory		26,144	25,644
. Operating Capital		80,328	80,328
. Contingencies		52,322	24,235
	TOTAL	$575,542	$266,587

1. If a building has to be purchased, the cost is based on a pre-fabricated steel structure costs of $125,000 which includes installation, foundation, a large overhead door, basic mechanical and electrical. Option #2 includes the cost of purchasing a pre-fabricated steel structure for finished product storage.

2. Moulding and related product sales tend to be concentrated in the fall and winter. In order to level production, the

business will have to continue production during the spring/summer season, which necessitates a larger operating capital. The operating capital was estimated at approximately one-third of the costs for the first year, minus inventory, because limited revenues will be coming into the firm during the first four months of operation.

3. Contingencies are for hidden costs. They are estimated to be 10% of all other costs.

9.2 Cash Flow Projections

9.2.1 Revenue Estimates

It is difficult to project revenue based on hypothetical products, since the company's revenue is dependent on the quality of its products, the number and type produced, the effectiveness of its marketing efforts and the management of the business. It can only be estimated on the basis of what is reasonable. From the market assessment conducted in this study, it is estimated that aspen may be able to obtain approximately a 10% share in Western Canada's moulding and wall panelling market. Assumed business phase-in is presented in Scenario's 1 and 2 as shown in Tables 9.2 and 9.3. In Scenario 1, phase-in is more gradual, with total market share not being achieved during the first 5 years. Scenario 2 depicted market introduction more rapidly Until results of the market test are known, more precise estimates cannot be provided. For the purposes of the cash flow projection, it will be assumed that product sales will be similar to those estimated in Scenario 1.

Table 9.2

Estimated Quantities of Product Sales (1985 Dollars)

SCENARIO 1	Mouldings	Wall Panelling	Total Quantities of Lumber
Year 1	732,000 lin. ft.	172,800 Fbm	355,000 Fbm
Year 2	2,515,708 lin. ft.	591,116 Fbm	1,220,043 Fbm
Year 3	3,933,414 lin. ft.	924,231 Fbm	1,907,585 Fbm
Year 4	5,351,122 lin. ft.	1,257,347 Fbm	2,595,128 Fbm
Year 5	6,030,456 lin. ft.	1,416,970 Fbm	2,924,584 Fbm

SCENARIO 2	Mouldings	Wall Panelling	Total Quantities of Lumber
Year 1	732,000 lin. ft.	172,000 Fbm	355,000 Fbm
Year 2	3,567,414 lin. ft.	838,231 Fbm	1,730,000 Fbm
Year 3	6,402,828 lin. ft.	1,504,462 Fbm	3,105,169 Fbm
Year 4	8,498,870 lin. ft.	1,989,201 Fbm	4,114,169 Fbm
Year 5	10,508,912 lin. ft.	2,489,939 Fbm	5,117,167 Fbm

Table 9.3

Estimated Annual Products Sales (1985 Dollars)

SCENARIO 1	Moulding Sales ($)	Wall Panelling Sales ($)	Total Sales
Year 1	87,840	77,400	165,240
Year 2	301,885	266,002	567,887
Year 3	472,010	415,904	887,914
Year 4	642,135	565,806	1,207,941
Year 5	723,655	637,637	1,361,292

Table 9.3

Estimated Annual Products Sales (1985 Dollars)

(Continued)

SCENARIO 2	Moulding Sales ($)	Wall Panelling Sales ($)	Total Sales
Year 1	87,840	77,400	165,240
Year 2	428,090	377,204	805,294
Year 3	765,281	677,008	1,442,289
Year 4	1,019,984	895,140	1,915,124
Year 5	1,261,069	1,120,473	2,381,542

9.2.2 Operating Costs Estimates

Table 9.4 outlines the costs that are projected to occur annually in order to operate the plant. This is based on the assumption that the proposed industry will lease space and equipment from Snow Goose Industries. For the purposes of cash flow projections, estimated production volumes will be approximated at Scenario 1 production levels. Values shown are based on current industry standards for the average situation encountered.

Table 9.4

Estimated Annual Operating Costs (1985 Dollars)

OPERATING COSTS	Year 1	Year 2	Year 3	Year 4	Year 5
. Loan	$ 20,117	$ 28,261	$ 31,783	$ 45,110	$ 52,590
. Rental	2,000	2,500	3,000	4,000	5,000
. Equipment Rental	10,000	10,000	10,000	10,000	10,000
. Materials	77,500	260,000	405,000	550,000	621,000
. Telephone	1,000	1,500	2,000	2,000	2,000
. Electricity	3,500	5,000	7,500	7,500	7,500
. Gas	1,500	2,000	3,500	3,000	3,000
. Accounting & Legal	2,200	2,200	2,200	2,200	2,200
. Advertising	40,000	20,000	20,000	20,000	20,000
. Travel Expenses	8,000	8,000	8,000	8,000	8,000
. Miscellaneous	11,569	11,569	11,569	11,569	11,569
. Contract Services	28,298	28,298	56,595	56,595	56,595
. Wages	77,447	154,893	217,182	311,438	372,075
TOTAL	$282,181	$534,221	$777,329	$1,031,412	$1,171,259

1) Loan

Approximately 50% of start-up funds and future equipment purchases will be borrowed from financial institutions. The cost will be amortized over 10 years, based on a 12% interest rate, plus a small administrative fee.

2) Building

Building will probably be leased from Snow Goose Industries.

3) Equipment Rental

The kiln and several other pieces of equipment will be leased by Snow Goose. The costs associated with leasing are included in the price cash flow projections.

4) Materials

The values presented here are estimated. They are based on paying $210 per 1,000 board feet for select aspen lumber. Polyetheylene will cost approximately $4.00 per pound or about 10 cents per package. Other costs are estimated. The plant will begin operations with $25,644 worth of inventory, which will be totally paid for by private sources. Therefore, the value of materials included in this section is the value required to replenish supplies.

5) Telephone

Based on sub-leasing the telephone from Snow Goose Industries.

6) Electricity

Based on entering into an agreement with Snow Goose and paying a portion of the electricity bill.

7) Gas

Based on sharing gas costs with Snow Goose.

8) Accounting and Legal Fees

Estimated from business sources.

9) Advertising

Based on industry sources. Included in the first year's budget is $20,000 to contract assistance with marketing.

10) Travel Expenses

Estimated; includes the cost of business trips and long distance telephone calls.

11) Miscellaneous

Insurance, maintenance, office supplies.

12) Contract Services

Contract services for manager, foreman, bookkeeper/secretary. Cost for the manager is estimated at $46,200 per year based on industry sources. The cost for a foreman is estimated at $37,800 per year. The cost for secretary/bookkeeper services will be contracted from Snow Goose Industries, it is estimated that the proposed plant will have to contribute 25% towards these salaries for time devoted to the proposed plant operation during the first two years and 50% towards these salaries during the last three years.

13) Wages

Based on 7.5 hour workday and 250 workdays a year and employee benefit costs at 10% per year.

Year 1

a) 4 Production Workers @ $7.35/hour
b) 1 Production Worker @ $8.15/hour

Year 2

a) 8 Production Workers @ $7.35/hour
b) 2 Production Workers @ $8.15/hour

Year 3

a) 11 Production Workers @ $7.35/hour
b) 3 Production Workers @ $8.15/hour

Year 4

a) 15 Production Workers @ $7.35/hour
b) 5 Production Workers @ $8.15/hour

Year 5

a) 19 Production Workers @ $7.35/hour
b) 5 Production Workers @ $8.15/hour

9.2.3 Cash Flow Projections

Table 9.5, the cash flow projection table, shows the business revenues exceed operating costs in the second year of operation, by about $33,666. During the first year, the products plant will require funding to subsidize its operation. After that, the plant will become viable and operate at a profit.

Table 9.5

Cash Flow Projections

	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue	$165,240	$567,887	$887,914	$1,207,941	$1,361,292
Cost	282,181	534,221	777,329	1,031,412	1,171,529
NET TOTAL	(116,941)	$ 33,666	$110,585	$ 176,529	$ 189,763

10.0 CONCLUSION

The proposed plant's plan to manufacture aspen mouldings and related products can become a viable business. It is also recommended that the proposed plant enter into a legal agreement with Snow Goose Industries to lease plant space and equipment. The markets appear to be good, particularly if the plant uses effective marketing techniques in its business operations. Aspen products should also be marketed as differentiated "innovative" product.

The following are the most important recommendations for the proposed plant, but are not necessarily listed in order of priority. Most of these are described in greater detail in the text of the report. Other useful recommendations may also be found in the text. The recommendations presented in this section are broken down into three types: business, management, production and marketing.

All of these recommendations will not come about automatically, nor will the implementation of these recommendations guarantee that the proposed plant will be successful and economically viable. One main ingredient that is necessary, and which is not mentioned in these recommendations, is the characteristics of the people working for and managing the firm. They must be committed, conscientious, and energetic in order to make it a successful business.

10.1 Business Management

1) It is recommended that the primary objective of the proposed plant's management is to assure that the company is operated at a profit, independent of any financial assistance from outside. The company must be operated in a business like manner with propoer business management and planning. To do this effectively takes experience.

2) It is recommended that a Board of Directors be set up for the operation. The board should be comprised of five to seven members, with a strong emphasis on business and sales experience. The members should include:

- two to three investors in the company;
- a banker;
- an accountant;
- a successful businessman; and,
- a lawyer.

The manager of the operation would report directly to the board. The board would hold regular meetings, make all decisions with respect to policy, and provide the manager with necessary guidance.

3) The proposed plant should hire the services of Snow Goose Industries' business manager to oversee start-up of the operation when funding is available. The manager should be responsible for the operation of all phases of the business. He should be responsible solely to the board. His primary objective should be to operate the plant at a profit independent of any outside financial assistance. The manager should have a well qualified and experienced foreman to assist in start-up of the operation.

4) The Board of Directors and manager should review the following aspects of the operation on a regular basis:

- Marketing Effectiveness: Review sales techniques. Is a systematic, comprehensive coverage of the marketing occuring?
- Appropriate Product Lines: Is each product line being produced at a profit? Are sales adequate? Is proper market testing being conducted for new products? Are products of good quality?

- Labour Productivity Levels: Are productivity levels good and what can be done to increase these?
- Material Cost: Are inventory control procedures implemented? Are cheaper sources of material supply available? Is wastage occuring?
- Service: Is turnaround time reasonable and consistent? Are customers satisfied with the company's service?
- Fixed Costs: Are these reasonable or can these be reduced?
- Price: Does price reflect all cost components or are revisions required?

10.2 Production

1) The items on which the proposed plant should focus its initial production efforts are determined on the basis of the market potential for the product, similarity of marketing effort required to sell the product, potential profitability, and ease of construction. The recommended products on which the plant should initially focus are:
   - mouldings such as baseboards, door casings, stops, jambs, and trim; and,
   - solid wood wall panelling.

   After the operation is established and productivity levels become high, the plant should consider manufacturing other products such as dowelling, dressed lumber and fingerjointed products.

2) A building may be leased from Snow Goose Industries. If it is, the proposed plant will only be required to construct a building which should be about 2,500 sq. ft., for finished product storage. If the plant does not lease a building, one will either have to be constructed or purchased. The building should be at least 5,000 sq. ft., but preferably 8,000-10,000 sq. ft., to allow for future expansion. It

should contain a work area, office, storage area, etc. It will have to meet with safety standards in addition to meeting the basic mechanical, electrical, and architectural requirements.

3) A list of recommended equipment is provided in the report. Production should be phased in and equipment purchased as required. The plant may be able to lease several pieces of equipment from Snow Goose as well as lease space on their dry kiln.

4) A list of material requirements and sources are provided in the report. Since the selling/shipping season is relatively short (fall and winter) the plant will have to produce and stockpile during the spring/summer seasons. This necessitates a larger operating capital for material to start the operation.

5) Although aspen can be used for a mouldings and related products plant, its properties can affect labour productivity. There may be problems associated with machining and finishing aspen, especially considering that unskilled labour will be used. Therefore, the plant must take great care in training the unskilled labour.

6) Initially to operate the plant, the part-time services of Snow Goose Industries' manager should be hired. In addition, the proposed plant should employ a foreman.
The characteristics required of this manager are:
- experienced, proven, high-quality workmanship;
- ability to get along with people and motivate them;
- ability to train unskilled workers;
- experience or ability to design mouldings and products;

- capable of day-to-day supervision and decision making; and,
- ability and demonstrated effectiveness in marketing the products.

7) The manager and foreman should be responsible for shop layouts, equipment purchasing and production set up. The manager would have overall responsibility for initial market testing of product lines and acquiring initial product orders. Once a distributor is selected, most day-to-day product orders would be handled by the foreman.

8) It is crucial to the successful introduction of the proposed products that the services of an experienced marketer or marketing consultant be temporarily contracted. They would be responsible for developing a marketing plan and aggressive promotion strategy, selecting the more effective and efficient distribution and initial market testing of product lines. Once the marketing plan is in place, the manager would assume the responsibility for updating it and ensuring that it continues to be effective in meeting the plant's needs.

9) Four unskilled production workers and one semi-skilled production worker (with limited previous experience) should be hired for the early stage of the business operation. In addition to the on-the-job training, a safety course must be provided.

10) To keep overhead down initially, the following are recommended: that all workers are paid on a wage basis; that the services of Snow Goose Industries' secretary/bookkeeper are contracted when the plant is opened; that when needed a full-time grinder and other additional part-time workers are contracted; and, that product designs and patterns are developed by the foreman.

11) It is recommended that the company keep abreast of the market, and new innovative products and techniques, by having operative "brainstorming" sessions with buyers and users, and by reviewing competitors' products through visiting retail outlets and studying their catalogues.

10.3 Marketing

1) The most important marketing considerations are good product quality and reasonably low prices. It is recommended that quality control procedures be implemented for all products. An on-going process of product evaluation through distributors, retailers, and users should be implemented. This will identify product modifications and quality considerations. New products should be tested in the market before introduction. All product designs should be well thought out for balance between production efficiency, quality and price.

2) It is recommended that the pricing structure be reviewed on an on-going basis. For the start-up of the production phase, prices should be established from the initial market testing. Once good productivity levels are realized, prices must be competitive, and reflect the cost of materials and labour involved in the production of the goods. An assessment should be made of all individual product prices. The components to be included in the prices include the following:

- labour production costs;
- costs of material;
- fixed and variable overhead; and,
- profit.

3) It is recommended that orders should be filled within two

weeks of receipt. Delivery times should be guaranteed. This can be done by stockpiling products.

4) Willingness, and ability to customize products for contractors' large volume orders, should be made known to all potential customers. A narrow range of product lines is desirable, at start-up.

5) Good quality display packaging may be required for some wall panelling products; however, most products only require shipping packaging. Simple, effective packaging should be used to minimize costs.

6) It is recommended that the proposed plant promote its existence and products. This should be done through the following:
   - production of a good catalogue and accurate price list;
   - distribution of mail-outs and some advertising in newsletters, newspapers and trade magazines;
   - Yellow Page directory advertising;
   - discreet but effective labelling and/or stamping of all products;
   - representation at trade shows, fairs, displays etc.;
   - advertising should mention that the company is an Alberta based company, providing quality products which are guaranteed, and that aspen products are new and innovative; a differentiated product should be promoted.

7) It is recommended that the manager co-ordinate sales while the foreman will be responsible for day-to-day sales management. The manager should concentrate on obtaining the services of a distributor.

8) It is recommended that the plant's products be marketed through a distributor. A system of prices should be

established with the distributor. There should be few exceptions to this price system. The distributor will also work with the proposed plant in developing effective promotion techniques and assisting them by promoting the potential products to retailers, contractors and other manufacturers in conjunction with the plant.

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APPENDIX A

QUESTIONNAIRES

SAWMILL OPERATORS SURVEY

Name: ______________________

Phone No: ___________________

Location: ___________________

1. What type of lumber operation do you have? (Check)

    Logging ____
    Sawmill ____
    Logging and Sawmill ____
    Planer operation ____
    Other (specify) ____

    ____

2. What is the capacity of your operation? How much milled lumber can you produce in a year?

    ____

3. Do you currently log and mill any poplar?

    Yes ____ No ____

    IF YES: How much do you estimate you mill in a year?

    ____

4.a) If the price were right, how much select grade poplar lumber could you produce in a year?

____

b) Would the available supply of standing select grade poplar be a problem?

Yes ____ No ____

Explain: ____________________________________

____

____

5. What would that price have to be delivered to Snow Goose Industries in Wildwood and for what quantities?

Price/1000	Quantities
______	______
______	______
______	______
______	______

6. Do you operate your mill 12 months of the year?

Yes _____ No _____

IF NO: Which months or season is it in operation?

____

____

7. Would you be prepared to expand your operation if a good buyer for all of your select grade aspen were available?

Yes _____ No _____

Explain: ____

____

____

8. How long have you been in the lumber business (Check)

More than 5 years ______

Less than 5 years ______

9. Comments: ____

____

____

MARKET SURVEY

Name of Business

____

1. What type of goods do you sell?

____

2. Below is a list of products which "Snow Goose" Industries may manufacture. It would be helpful if you could provide us with information concerning these products:

	Sell This Product (Check if yes)	Wood (W) Other (Specify)	May Sell in Future (Check if yes	Estimated Quantities	Specifications	Price Range
Panelling						
Closet Rods						
Baseboard						
Window Casing						
Door Casing						
Door Stops, Jams						
Louvers						
Dowelling						
Spindles						
Stair Rails						
Bannisters						
Mouldings						
Bunk beds, Quarter Posts						
Stock for Wooden Windows						
Other (specify)						

3. If a new supplier came on the market at good prices, selling poplar, a light colored hardwood, would you consider using him?

________ Yes ________ No

Why? ______________________________.

4. Specify wood products made of poplar, that you might be interested in selling. (estimated quantities and price range)

____

____

____

5. How important would you rate the following from a supplier of products?

	Very important	Important	Not important
Low Prices			
Good quality Products			
Located close to your store			
Short turn around in orders			
Frequent contact with Manufacturer			
Manufacturer being well Known			
Willingness to customize Products			
Quality of packaging			

6. On what basis do you generally do business with your suppliers?

____

____

7. Who pays the transportation costs?____________________

From where?______________________________

8. What packaging considerations are important in the sale of wood products?

____

____

9. Who are your suppliers of wood products? (major and minor)?

____

Where are they located?____________________

____

10. Major jobber/distributors:

Firm	Location

THANK YOU VERY MUCH FOR YOUR ASSISTANCE.

Manufacturers Survey

1. How long have you been in operation?_______________________________

____

2. How many people do you have working here?

Production________.
Management________.
Sales ________.

3. Which products do you manufacture?

Products	Estimated Quantities	Specifications	Price Range

4. Who do you sell to? How far away are your markets?

____

____

5. What sales techniques do you use?

e.g. Phones ________
Mail Outs ________
Direct Calls ________
Shows ________
Word of mouth ________

6. Who are your major competitor?

Names and Locations:____

____

7. Is this a highly competitive business whereby you have struggle to make a go of it?____

____

8. What type of equipment do you use?________________________________

____

How many machines?____
Who supplies the equipment? (Company name and location)

____

____

9. Do you produce and stockpile or just produce in specific orders?

____

10. Are you working at or near capacity?____________________________
What percentage would you say?__________________________________
If not at full capacity, why not?_________________________________

11. Do you plan at some time in the future to expand your capacity?______
When?______. By how much?_____________________________________

12. Where do you get the wood you use from?__________________________
How much do you use in 1 month?________________ 1 Year___________
At what cost?_______________.
Are prices stable or do they vary?________________________________
Do you ever have trouble getting what you need?____________________

APPENDIX B

INDEPENDENTLY OWNED AND OPERATED HOME IMPROVEMENT CENTERS IN ALBERTA'S MAJOR CENTER

INDEPENDENTLY OWNED AND OPERATED
HOME IMPROVEMENT CENTERS
IN ALBERTA'S MAJOR CENTER

Alberta Wide Building Supplies Ltd.	Edmonton
Archade W.W.	Edmonton
Builder's Supplies Ltd.	Edmonton
Bulldog Building Supplies	Edmonton
Cedar Village Building Materials Ltd.	Edmonton
Cedarwest Building Supplies Inc.	Edmonton
Home All Building Centre	Edmonton
Igloo Building Supplies Group	Edmonton
LBH Building Supplies Ltd.	St. Albert
Lo Cost Lumber Sales	Edmonton
McLeod Home-All Building Centre	Spruce Grove
Mr. Plywood Ltd. (2 outlets)	Edmonton
Muttart Industries Inc.	Edmonton
Nelson Lumber Co. Ltd.	St. Albert
Northern Eau Claire Construction Materials Ltd.	Edmonton
Prudham Building Supplies (2 outlets)	Edmonton
RR Insulation & Building Supplies Ltd.	Edmonton
Saunders & Wens Building Supplies Ltd.	Edmonton
Steward Valley Lumber Ltd.	Spruce Grove
Superior Lumber Ltd.	Edmonton
Trail Building Supplies	Edmonton
Winderwood Cedar Products	Edmonton
Agri-Fab Lumber Industries	Calgary
Aquarius Building Supplies	Okotoks
Baldy's Lumber	Calgary
Builder's City	Calgary
Cabinet Warehouse	Calgary
Co-Op's (outlets through Alberta)	Calgary
Camberg Building Supplies Ltd.	Calgary
Cantree Building Products	Calgary
Cascade Forest Products Ltd.	Calgary
City Wide Building Supplies	Calgary
Continental Door and Building Supplies	Calgary
Davidson Enman Lumber Ltd.	Calgary
Fisher Building Supplies of Alberta Ltd.	Calgary
Gadco Building Supplies	Calgary
Good Buy Doors and Building Supplies	Calgary
Gunther's Building Center Ltd.	Calgary
Kenmar Building Center	High River
Logger Lumber and Building Supplies Ltd.	Calgary
Lumber King	Calgary
Manor Distributers Ltd.	Calgary
Maple Building Supplies Ltd.	Calgary
Muttart Builder's Supplies	Calgary
Northern Eau Claire Construction Materials	Calgary

Nu-Line Building Products Ltd.	Calgary
Redi-Cut Lumber Ltd.	Calgary
Silverstar Building Supplies Ltd.	Calgary
Spiral Stairs and Spindles	Calgary
Stampede Lumber Co. Ltd.	Calgary
Sundown Shelter Products Ltd.	Calgary
Timbertown Building Centre	Calgary
Turner Lumber and Supplies Ltd.	Calgary
Victor's Building Supplies Ltd.	Calgary
Burkholder Building Supplies Ltd.	Fairview
Empire Lumber	Manning
Forest Lumber and Building Supplies Ltd.	High Level
Frontier Lumber (1980) Ltd.	Spirit River
Intercoast Lumber Alberta Ltd.	Beaverlodge
Pioneer Home-All Building Supplies	High Prairie
Rycroft Lumber and Building Supplies	Rycroft
Superwood Building Products	High Level
Tervan Building Products Ltd.	Grande Prairie
United Farmer's of Alberta Co-operatives	Grimshaw
Valleyview Building Supplies Ltd.	Valleyview
West Country Products	Grande Prairie
West Peace Building Supplies Ltd.	Hythe
BHL Building Supplies Ltd.	Sylvan Lake
Cedar Lane	Red Deer
KRT Building Supplies	Cornation
Katee Building Materials Ltd.	Stettler
Mainline Services	Cornation
Scanmer Decorating and Building Supplies	Ponoka
Stewart Supplies	Penhold
Tydewater Lumber Ltd.	Rimbey
Woodking Forest Products Ltd.	Lacombe
Advance Lumber	Lethbridge
Bird Building Supplies	Lethbridge
Challenger Building Supplies Ltd.	Lethbridge
Crestline Builder's Market	Lethbridge
Dan's Building Supplies Ltd.	Lethbridge
Economy Cashway Lumber Ltd.	Fort MacLeod
Lealta Building Supplies	Lethbridge
Trademark Builder's Supply Ltd.	Taber
Kulpe & Lumber Sales	Medicine Hat
Lerner's Home All Building Centre	Medicine Hat
Redcliff Building Supply Ltd.	Redcliff

APPENDIX C

HARDWOOD GRADING RULES

Hardwood Grading Rules

The specifications shown here are reproduced from the grading rules issued by the U.S. National Hardwood Lumber Association. In general, the rules are accepted universally.

POPLAR

Note: Mineral stain not exceeding in the aggregate one sixth of the surface of the piece is admitted in Firsts and Seconds and on the face side of Selects. It is not limited in Saps and in the Common grades.

FIRSTS: Standard, except:

Widths: 8" and wider.

SECONDS Standard, except:

Pieces of 4" and 5" surface measure shall yield not less than 11/12 (91 2/3%) clear face in one cutting; pieces 6' and 7' surface measure shall yield not less than 11/12 (91 2/3%) clear face in not over two cuttings.

SAPS: Widths: 5" and wider. There is no restriction in the amount of heartwood or sapwood.

Lengths: 8' to 16', admitting 30% 8' to 11'.

Pieces 5" wide shall be clear except that one split not exceeding in length the width of the piece, or its equivalent is admitted.

Pieces 6" and wider may have wane along the edges not exceeding 1" in width, one sixth the length and one half the thickness of the piece, or its equivalent in area at one or both ends and a split not exceeding in length the width of the piece, or its equivalent, which shall not be considered defects. In addition pieces 6" to 9" wide admit one standard defect; 10" and wider two standard defects, or their equivalent, except that in pieces 6" to 8" wide such standard defect shall not be wane or split.

Side bend shall be limited to 1/2" in pieces 7' and 9' long; 3/4" in 10' to 12' and 1 1/4" in 13' to 16'. Each additional 1/2" of side bend shall be considered as one additional standard defect.

SELECTS: Standard, except:
Widths: 6" and wider.
Lengths: 8' to 16', admitting 30% 8' to 11' of which one half may be 8' and 9'.

Selects shall grade not below Seconds Poplar on one face, and not below No.1 Common Poplar on the reverse side; the reverse side of the cuttings in both FAS and No. 1 Common are not required to be sound.

STAINED SAPS: This grade is the same as Saps except that stain is admitted.

NO.1 COMMON: Standard, except slight stain is admitted.
Lengths: 6' to 16', 10% of which may be 6' and 7'.

NO.2A COMMON: Standard No.2 Common, except stain is admitted.

NO.2B COMMON: Standard No.2 Common, except stain is admitted, and cuttings to be sound as defined in "Sound Cutting".

NO.3A COMMON: Standard, except stain is admitted and cuttings to be sound as defined in "Sound Cutting".

NO.3B COMMON: Standard.

APPENDIX D

WOODWORKING EQUIPMENT MANUFACTURERS
AND RESIN SUPPLIERS

APPENDIX D

FINGER JOINTER MANUFACTURERS

Mann-Russel Electronics Inc.
1401 - Thorne Road
TACOMA, Washington 98421
(206) 383-1591

IMC-Lewyn Machinery Co. Inc.
2130 Jackson Parkway Northwest
ATLANTA, Georgia 30318
(404) 799-5666

Ashdee-George Koch and Sons
Box 325
GRANSVILLE, Indianna 47702

Cook Bolinders Ltd.
LEIGHTON BUZZARD - England
Sold in North Americ by Totem
P.O. Box 3706
SEATTLE, Washington
(206) 762-9191

Marwill Services
P.O. Box 990
9341 Trans Canada Highway
CHEMAINUE, B.C. V0R 1K0
(604) 246-3251 - Bill Janyk

Crameens Fingerjoint Services Inc.
P.O.Box 402201
GARLAND, Texas 75040
(214) 494-1274

Finger Joint Inc.
Howard S. Twichell Co.
711 Sheperd Drive
GARLAND, Texas
(214) 494-3311

Festo Finger Jointing
Festo Woodworking Machines
10 Sint Sink Drive East
POINT WASHINGTON, N.Y. 11050
(516) 883-2671

W.K. Industries
SURREY, B.C.
(A.L. Aiken)

CUTTERS FOR FINGER JOINTERS

Disston-Sandvik
1705 - 4th Ave. S.W.
SEATTLE, Washington 98124
1-800-426-0270

Jack Sigrist Canada
(Saturn Cutters)
21 Jarvis Street
CAMBRIDGE, Ontario

CONSULTANTS FOR FINGER JOINTING

Wildman Management
(Dennis Mawhinney)
2560 - 100 W. Georgia St.
VANCOUVER, B.C.
(604) 669-5635

RESIN SUPPLIERS IN BRITISH COLUMBIA

Borden Chemical (Western)
1550 Rand
VANCOUVER, B.C.
(Contact Joe Johanssen, Larry Germann
or Ed Hartz)
(604) 261-9356

Reichhold Chemicals Ltd.
50 Douglas
PORT MOODY, B.C.
(604) 939-1181

RESIN AND SUPPLIERS - NORTH AMERICA

Borden Chemical Division
180E Broad St.
COLUMBUS, Ohio 43215
"Type: 520 or L580 Systems or
Cascophen LT 680"

Bostic Division Emhart
Boston Street
MIDDLETON, Massachusetts 01949
"Bostic 8400"

Franklin Chemical Industries
2020 Bruck Street
COLUMBUS, Ohio 43207
"Multibond Catalyzed Aliphatic"

Georgia Pacific Corp.
900 S.W. Fifth Ave.
PORTLAND, Oregon 97204
"Melamine Urea GP 4163"

Koppers Co. Inc.
Organic Materials Division
1350 Koppers Building
PITTSBURGH, Pennsylvania 15219
"Resorcinol Penacolite G1124, G1131,
G4411"

National Casein Co.
601 W. 80th Street
CHICAGO, Illinois 60620
"Melamine MB 330"

Wildhold Glues Inc.
8707 Millergrove Drive
SANTA FE SPRINGS, California 90670
"Resorcinol 3, Plastic Resin 16"

Adhesive Products Corp.
Modified Polyviny
3067 N. Elston Ave.
CHICAGO, Illinois 60618
"Assemble Stik 50-1020"

Peter Cooper Corp.
Palmer Street
GOWANDA, N.Y. 14070
"Polyvinyl resins PW 1, 2A, 15,
630, 23, 635, 49, 640"

H.B. Fuller Co.
5220 Main St. N.E.
MINNEAPOLIS, Minnesota 55421
"Epoxy FE 7006, Urethane UR 2139,
Reactive Adhesive RA0018"

Key Polymer Corp.
Jacob's Way
Lawrence Industrial Park
LAWRENCE, Massachusetts 01842
"Synthetic Resin W6"

National Adhesives Division
National Starch and Chemical Corp.
10 Finderne Ave.
BRIDGEWATER, N.J. 08807
"Duro Lok 100, Instaweld, HM
34-3109

Roberts Consolidated Industries
600 N. Baldwin Park Blvd.
CITY OF INDUSTRY, California 91749
"Resorcinol, Elastomeric 6018,
6016"

MOULDERS - MACHINERY MANUFACTURERS

Wadkin Bursgreen P.L.C.
Green Lane Works
LEICESTER, England
LE5 4Pf

EZ Manufacturing Co. (Pendu)
RD 1
NEW HOLLAND, Pennsylvania 17557
1-800-233-0471

Newman Machine Co. Inc.
Box 5467
GREENSBORO, North Carolina 27403
(919) 273-8261

Yates-American Machine Co.
ROSCOE, Illinois 61073
(815) 389-3454

AGENTS ARE:
Akhurst Machinery Ltd.
216 W 2nd Ave.
VANCOUVER, B.C.
(604) 876-4191

Stetson Ross
3200 - 1st Avenue South
SEATTLE, Washington 98134
(206) 622-4188

Timesavers Inc.
5270 Hanson Ct.
MINNEAPOLIS, Minnesota 55422
(612) 537-3611

Coastal Machinery Co. Inc.
732 - S.E. Clay Street
PORTLAND, Oregon 97214
(503) 232-5614